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March 22, 2011

Steven Way
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SUBJECT: START 3, EPA Region 8, Contract No. EP-W-05-050, TDD No. 1008-01
Field Activities Report – Red and Bonita Mine Site, San Juan County, Colorado

Dear Mr. Way:

Attached are two copies of the Revision 2 Field Activities Report conducted at the Red and Bonita site in San Juan County, Colorado. Field activities were conducted August 30 to September 3; September 10; September 20 to October 1; and October 11 to October 13, 2010.

If you have any questions, please call me at 303-291-8269.

Sincerely,

URS OPERATING SERVICES, INC.

Joe Gilbert, PG
Project Manager

cc: Charles W. Baker/UOS (w/o attachment)
File/UOS

Steve

START 3

Superfund Technical Assessment and Response Team 3 – Region 8

United States
Environmental Protection Agency
Contract No. EP-W-05-050

FIELD ACTIVITIES REPORT

RED AND BONITA MINE SITE
Silverton, San Juan County, Colorado

TDD No. 1008-01

March 22, 2011

URS
OPERATING SERVICES, INC.

In association with:
Garry Struthers Associates, Inc.
LT Environmental, Inc.
TechLaw, Inc.
Tetra Tech EMI
TN & Associates. Inc.

FIELD ACTIVITIES REPORT

RED AND BONITA MINE SITE
Silverton, San Juan County, Colorado

EPA Contract No. EP-W-05-050
TDD No. 1008-01

Prepared By:
Joe Gilbert
Project Manager

URS Operating Services, Inc.
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Approved: _____ Date: 3/25/11
Steven Way, On-Scene Coordinator, EPA, Region 8

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DISTRIBUTION LIST

U.S. ENVIRONMENTAL PROTECTION AGENCY

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FIELD ACTIVITIES REPORT

RED AND BONITA MINE SITE
Silverton, San Juan County, Colorado

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APPENDICES

1.0 INTRODUCTION

URS Operating Services, Inc. (UOS), was tasked by the Environmental Protection Agency (EPA), under Superfund Technical Assessment and Response Team 3 (START) contract # EP-W-05-050 Technical Direction Document (TDD) No. 1008-01, to provide technical support to the Region 8 On-Scene Coordinator (OSC) at an abandoned mine site near Silverton, San Juan County, Colorado. Specifically, START was tasked to install a directional piezometer with a data-logging pressure transducer and conductivity probe into the abandoned, collapsed mine adit at the Red and Bonita Mine site. Furthermore, site characterization of the waste rock piles and estimates of discharge was to be performed. Field work at the Red and Bonita site also included the installation and monitoring of pressure transducers at other mine sites upgradient and downgradient from the Red and Bonita. Field activities followed the applicable UOS Technical Standard Operating Procedures (TSOPs) and the Emergency Response Program generic Quality Assurance Project Plan (UOS 2005, 2008).

The Red and Bonita Mine site is located along Cement Creek approximately 10 miles north of the town of Silverton, Colorado centered near 37.897236° north latitude and -107.64382° west longitude (Figure 1).

The following site activities were performed by START:

- June 2010 – Site reconnaissance, mine effluent, surface water sampling, waste pile survey, and surface water flow measuring at Red and Bonita.
- August to September 2010 – Site reconnaissance, initial geophysical data collection, Global Positioning System (GPS) surveying of site, and a site preview meeting with a drilling contractor and excavation contractor.
- September to October 2010 – Geophysical investigation, drill pad and access road preparation, and drilling activities.
- October 2010 – Installation of a pressure transducer snow shelter, final installation of a pressure transducer within a piezometer, initial field test, and servicing of all pressure transducer locations.

This report includes discussion of the above activities, presented in chronological order in Section 3.0.

2.0 BACKGROUND

2.1 PLANNING

A meeting was conducted between EPA, the State of Colorado Division of Reclamation, Mining and Safety (DRMS), and START, in August 2010. The purpose of the meeting was to determine an effective assessment method for the Red and Bonita Mine site, and specifically of the adit discharge that flows effusively from a hillside at the site ("Red and Bonita adit flow"). Assessment of site characteristics would be used to evaluate remediation and engineering alternatives.

In order to better understand groundwater characteristics at the mine, it was determined that installation of a piezometer into the mine adit would be required.

The purpose of the piezometer is twofold:

- Exploratory drilling while also drilling the piezometer location at the site could help determine the size of the collapsed zone at the adit entrance and provide quantitative data for further site activities.
- A pressure transducer placed in the piezometer could record and document conductivity and head changes in the collapsed mine adit until the adit is reopened.

In order to complete this investigation, site improvements would need to be made including, but not limited to, the construction of a drilling pad, improvement of an access road to the north of the site, and acquisition of appropriate instrumentation for long-term (greater than 6 months) data gathering.

An additional site consideration was the limited time available for site activities. It was determined that all site operations must be completed before the end of September 2010, in order to avoid winter weather patterns common in the Silverton, Colorado area.

In addition to instrumentation to be added to the piezometer at the site, three additional pressure transducers were to be installed at existing EPA Parshall flume locations: the American Tunnel adit, the Upper Gold King #7 adit (aka Upper Gold King, or Upper Gold King Level 7), and the Mogul Mine adit. Data gathered from all transducer locations would be used to develop remedial

alternatives and provide basic site characterization for other potential activities within the Cement Creek watershed.

2.2 RED AND BONITA MINE

The Red and Bonita Mine is in the Cement Creek watershed, which is a component of the upper Animas River watershed. These watersheds were the focus of both large- and small-scale mining operations that flourished beginning in 1871 and lasting until as late as 1991 (U.S. Geological Survey [USGS] 2007). Though this region has been extensively studied, including geologic, hydrologic, and geochemical studies in the evaluation of metals contamination and acid mine drainage (AMD), limited documentation exists on the Red and Bonita Mine specifically, likely because it resides on private land (USGS 2007). Photo documentation is included in Appendix A.

The site consists of approximately 1.25 acres of waste rock and suspected tailings material, a collapsed and flowing mine adit, and accompanying debris (Figure 2) (Photo 1). The site itself lies on the west-facing slope, east of Cement Creek, approximately 200 vertical feet above the creek. The slope of the mountainside in which the mine is located averages 44 percent grade.

Aside from mineral oxide (yellow boy) staining and constant flow emanating from the hillside, the adit at Red and Bonita Mine is collapsed, and its dimensions are difficult to distinguish from the hillside (Photo 4). Red staining visible in Photo 4 is approximately 15 feet across and 7 feet high. These dimensions are likely reflective of mine water effusing through unconsolidated material, rather than reflecting the true size of the adit. The Red and Bonita adit flow ranges from a low of 0.4 cubic foot per second (cfs) measured in April 2010 to a high of 0.749 cfs in May of 2009 (Table 1).

The surveyed location of the mine adit inby where water flows from the slope was poorly constrained, and is shown in a 1899 map obtained from DRMS (Figure 3). This map is an adit survey conducted in 1899 and shows the Red and Bonita adit as a single tunnel with a dogleg. Based on the 1899 map, the first 50 feet inby trends to the east at N61°E, and at 50 feet the adit direction changes to S79°E inby. Initial interpretation by DRMS suggested that the first 50 feet of the adit were advanced through unconsolidated colluvium, and crystalline bedrock was encountered at the dogleg. It was assumed that the dogleg represents the geological contact between younger, poorly consolidated material and crystalline bedrock. The investigations of the adit and related work performed in 2010 are described below.

3.0 SITE ACTIVITIES

The following site activities were completed in several different field events at the Red and Bonita Mine site. Collectively these field efforts were completed in order to provide characterization of the current site, and to gather geologic and hydrogeologic data.

3.1 SITE SURVEY AND RECONNAISSANCE

START and EPA mobilized to the site on in June 2010. Site activities included a Differential Global Positioning System (DGPS) survey of the existing waste piles, surface water sampling at the Red and Bonita adit flow, and flume and flow-meter discharge measurements.

3.1.1 Waste Rock

The waste rock dump at the Red and Bonita mine is an estimated 3,200 cubic yards in a two tiered pile. A GPS survey was conducted during the site visit to delineate the extent of waste rock piles at the site (Figure 2). Thickness estimations were also collected using a DGPS. Volumes were then calculated in a Geographic Information System (GIS) and are presented in Table A. Tier 1 constitutes the majority of the waste rock at the site and represents all waste material observed above a bench, or abandoned access road up to the Red and Bonita adit flow.. Tier 2 represents all waste material observed between the main county access road and Tier 1. Though much of the Tier 2 area appears stained, waste rock does not appear to be piled significantly above the ground surface and, therefore, it is interpreted that much of Tier 2 is actually mineralized staining and surface debris (Photos 1). It should be noted that without invasive techniques (e.g., excavation, borehole drilling) to delineate the base of both waste piles, volumetric calculations are estimates.

TABLE A
Waste Rock Area and Volume at the Red and Bonita Mine Site

Red and Bonita Waste Rock Pile	Area ($feet^2$)	Volume ($yards^3$)
Tier 1	22,321	3,160
Tier 2	23,099	802

3.1.2 Mine Adit Water – Field Parameters and Analytical Data

For the purposes of discussion, data collected during the June 2010 site reconnaissance is compared to EPA location CC03D (Figure 2).

In an attempt to estimate flow from the Red and Bonita adit, a portable flume (Flume 1) was temporarily installed at the toe of the Pile in the roadside ditch to measure the majority of flow spilling over the face of the dump. A side flow off the top of the dump to the south, not accounted for by Flume 1, was measured with another temporary flume (Flume 2). These locations are shown in (Figure 2). A flow of 230 gallons per minute (gpm) (0.512 cfs) was observed at Flume 1, and 33.2 gpm (0.074 cfs) was observed at Flume 2. Both flume flow measurements represent the total estimated amount of flow (263.2 gpm/0.59 cfs) coming from the Red and Bonita adit flow shown as RBSWO1 (Table 1). The combined flow measurement from the waste rock pile is similar to the flow measured by the EPA at CC03D in early June. Monthly flow measurements for 2009 and 2010 at CC03D, which is located down gradient from the Red and Bonita waste rock pile at a culvert, are outlined in Table 1. A data gap exists for the months of December 2009, January 2010, and May 2010. In order to determine changes in flow rates and fill in these data gaps, pressure transducers were installed and are discussed later in this document.

In addition to flow measurements, a water sample was collected from the Red and Bonita adit flow (RBSW01). Sample results are summarized in Table 2. Complete analytical results can be found in Appendix B. Comparison of the RBSW01 to CC03D is also presented in Table 2. These data were collected and compiled by EPA and are part of a long-term EPA monitoring project. The data suggest that the Red and Bonita adit flow contributes significant concentrations of aluminum (1,840 to 3,920 µg/l), iron (80,500 to 100,000 µg/L, manganese (30,800 to 35,200 µg/L) and zinc (13,600 to 16,400 µg/l) to Cement Creek. Waste rock samples were not collected by START during the June 2010 site survey; however there is existing data for the waste rock: a sample collected by the USGS in 1997, and a Colorado Department of Health and Environment (CDPHE) sample collected in 1996. (USGS 2007, UOS 2009) (Table 3). Synthetic Precipitation Leaching Procedure (SPLP) and metals analysis was performed by the USGS and CDPHE, respectively, with results presented in Table 3.

Water from the Red and Bonita adit flow contains metals concentrations significantly higher than the waste rock SPLP results (e.g., zinc at RBSW01 averages 15,000 µg/l, while SPLP leachate results are 1,000 µg/l). During the site visit, the majority of the runoff measured at Flume 1 was attributed to the Red and Bonita adit flow, and water emanating from the waste rock piles is not significant in volume and is unlikely to contribute significant amounts of metals from the waste pile via leaching to the surface water flow, as evidenced by the relatively low SPLP data results.

The data collected at CC03D is surface water emanating primarily from the Red and Bonita Adit Flow collected at the base of the waste rock piles. Concentrations between CC03D and RBSW01 are within 20 percent for all analytes except copper and lead (Table 2). Because of these similarities, it appears that the waste rock pile at the Red and Bonita Mine site does not contribute significant metals to Cement Creek.

3.2 DRILLING PREPARATIONS: SITE VISIT AND INITIAL GEOPHYSICAL DATA COLLECTION

START mobilized to Silverton, Colorado from late August to early September. The purpose of this site trip was fourfold:

- Because the location of the Red and Bonita Mine adit was poorly constrained inby the Red and Bonita adit flow, START, with the support and equipment of the Bureau of Land Management (BLM) and USGS, completed a geophysical survey to identify the location of the mine adit in the subsurface. Specifically, electrical resistivity imaging (ERI) was performed to aid in the characterization of the adit location, and to optimize the intrusive drilling program.
- START met with a local excavator to perform site improvements and prepare the site for drilling operations.
- START met with the driller to determine an appropriate drilling strategy for installing a piezometer into the Red and Bonita Mine. Additionally, the driller was instructed to provide a basic drill pad and water needs related to drilling.
- START performed a field reconnaissance of three Parshall flumes in order to determine the dimensions and logistical limitations for installation of data-logging pressure transducers into the flumes. The flumes are located at the Mogul Mine, the Upper Gold King, and the American tunnel. The Parshall flumes were previously installed at these

locations. In addition to pressure transducer installation at the above flumes, a pressure transducer was also placed in the well installed at the Red and Bonita Mine.

3.2.1 Geophysical Data Collection

The EPA coordinated with the BLM and facilitated the use of an Advanced Geophysics, Inc. (AGI) SuperSting R8 earth resistivity meter, 25 four-electrode active-electrode cable sets (100 electrodes total), respective electrode stakes, and boost batteries that were received by START from the USGS in August 2010.

Geophysical work began with a survey and layout of a geophysical resistivity line that concentrated its location and maximum penetration depth proximal to the anticipated location of the Red and Bonita adit, based upon the existing information and the 1899 map. The line was approximately 35 feet directly uphill from the adit discharge and extended 50 meters to the north and to the south of the adit discharge. Electrode spacing for RBLN01 was 1 meter. In general, electrode spacing should be closer together than the anticipated size of subsurface targets in order to resolve those targets at depth.

A survey command file was programmed into the resistivity meter utilizing an Inverse-Schlumberger array to minimize acquisition time and maximize data resolution near the suspected location of the adit. For more general information about the resistivity method, see Appendix D, which outlines a description of the method.

Prior to conducting the resistivity survey, a contact resistance test was conducted on the instrument to ensure that electrode stakes were secure and well-coupled to the ground, and that electrical current was able to penetrate the ground via each electrode. During contact resistance testing, it was noted that most electrodes on the active cable sets returned a value of 14.92 ohms. Typically, contact resistance values lower than 2000 ohms are preferable. However, a consistent return value of 14.92 ohms was suggestive of equipment problems, and not a result of true ground coupling conditions. These values did not change during attempts to improve ground coupling, but the survey was initiated despite the contact resistance values.

The survey ran for more than 3 hours, much longer than the survey planned acquisition time of 2 hours. The prolonged survey runtime was an indication of possible equipment

problems. Later, pre-processing of the data revealed that the survey did not gather usable data, and that the equipment was likely not functioning properly.

The day after the survey was run, START called AGI, the equipment manufacturer, to confirm if equipment failures were responsible for the unusable dataset. AGI confirmed that the 14.92 Ohm response and the severely degraded data was a result of the active electrodes in the resistivity cables being corroded or otherwise non-functioning. Further discussions with the BLM and USGS personnel confirmed concerns about the malfunctioning equipment. START decided that reacquisition of the data was thus not appropriate with the equipment and, therefore, did not continue geophysical surveying during this field effort.

It was determined that data should be reacquired using a different system prior to the beginning of drilling operations.

3.3 SITE PREPARATION – DRILLING ACTIVITIES

A drilling pad needed to be constructed above the collapsed adit portal, and a short historic access road north of the Red and Bonita adit needed to be cleared and graded. In addition, temporary containment structure was placed to capture adit water needed during drilling. Only minor improvements to the north access road needed to be made in order to allow access for the drill rig and support trucks. Planning and coordination with both the driller and the excavation contractor for the completion of the following was conducted during a site meeting in September, prior to the initiation of on-site work.

- An access road exists and approaches the site from the north ("north access road") (Figure 2). This road is on private land, and the EPA coordinated site access with the landowner prior to site activities. In order to gain access to the site and perform drilling operations, the track-mounted drill rig required the access road to be approximately 10 feet wide. The existing road was 10 feet wide in most places, and therefore the road required minimal improvement. A total of 6 trees less than 3 inches caliper in size were removed (photos 10 and 11).
- At the south end of the north access road, a short access ramp and drill pad approximately 30 feet long by 12 feet wide was created approximately 25 feet directly above the adit flow. The pad and access road were cut and filled from the hillside in

order to minimize impact to the site. Additionally precautions to minimize excavation impact to the waste-dump area of the site were maintained during excavation operations.

- The existing access road at the Red and Bonita site was bladed and improved to allow for truck access to the top of the Red and Bonita waste rock pile to set up a water pump for drilling operations.
- A small pool of water was made on site to provide water for drilling operations. Because the Red and Bonita adit flow is discharging enough water to support all drilling operations, the flow was temporarily dammed and contained within a pond created with a poly-liner and hay bales.

3.4 GEOPHYSICAL DATA REACQUISITION AND INTERPRETATION, DRILLING PROGRAM DETERMINATION

For the purposes of this report, electrode and drilling locations will be presented as a four-letter prefix, RBLN, for Red and Bonita geophysical line; a one-digit line number; and an electrode location. For example, electrode location 48 and drilling location 48 on the west geophysical line is "RBLN1E48" (Figure 4).

3.4.1 Geophysical Data Collection

Because geophysical data collection during the week of August 30 was not successful due to the malfunctioning equipment, START mobilized a different resistivity system and collected geophysical data during the week of September 20, 2010.

The purpose of this trip was to gather two geophysical resistivity lines transverse to the suspected location of the collapsed mine adit.

The data collection and site survey was conducted from September 21 through September 25. A total of two lines were collected: RBLN01 and RBLN02. These two lines are north-south trending and are centered transverse upon the location where the Red and Bonita adit was estimated to exist in the subsurface.

Like the previous geophysical attempt, an AGI SuperSting R8 resistivity meter was employed, and a dipole-dipole array was used to collect the resistivity data. The dipole-dipole array was used in order to maximize data resolution within the upper 40 to 50 feet

of the drill pad. The unit used during this field effort used 112 electrodes on eight 14-electrode passive cable sets. Each electrode on the line has a unique number attached to it, from 1 to 112. Using passive cables for data collection alleviated the potential for incorrect electrode addressing electrode issues similar to those encountered during the previous survey attempt. Further details of the data acquisition, data processing, and results are included in Appendix D.

Because the ERI lines were conducted along the access road and drill pad constructed prior to the survey, there were significant challenges to achieving adequate coupling between the electrodes and the ground. To briefly summarize here, the near-surface materials of very loose soil with gravel and boulders, particularly after disruption from preparation of the drill pad, prevented good coupling of the electrodes with the ground. This fact produced higher than normal noise levels, and provided a hindrance to inducing electrical current into the subsurface. Therefore, although reasonable ERI data were obtained, the quality was not as high as is often possible.

3.4.2 Geophysical Results

The results of this survey indicated the presence of an anomaly at electrode location RBLN1E68 and at line RBLN2E48 (called Anomaly 1), and another anomaly is located near RBLN1E76 and RBLN2E58 (Anomaly 2). It must be acknowledged that both weather (i.e., significant rain) and the excavation work at the site for the drill pad, combined with the coarse subsurface material present at the site resulted in a data set that indicated highly-resistive material and "noisy" data. Geophysical profiles are presented on Figure 5. In the profiles, hot colors (red, orange, yellow) represent areas of high-resistivity while cool colors (blue, green) represent less resistive areas. It is assumed that a mine adit, either collapsed or uncollapsed would have metals-laden water flowing through it, as suggested by the Red and Bonita adit flow, and would, therefore, be less resistive than the surrounding materials. Anomaly 1 is in close proximity to the 1899 map pattern. Anomaly 2 is directly east inby the Red and Bonita adit flow.

Drilling operations, presented below, revealed that Anomaly 1 was caused by a subsurface presence of water, and Anomaly 2 was the adit. Thus, the ERI was successful in minimizing and optimizing the intrusive investigation.

3.5 BOREHOLE DRILLING AND PIEZOMETER CONSTRUCTION,

The purpose of the drilling and piezometer installation is twofold:

- Exploratory drilling at the site could determine the size of the collapsed zone and provide quantitative data for further site activities.
- A pressure transducer placed into the piezometer could record and document conductivity and groundwater head changes in the mine adit throughout the winter months.

It was planned that upon location of the adit, another borehole would be advanced using HQ diameter coring methods to secure a continuous core for Rock Quality Designation (RQD) analysis, and a small diameter borehole for piezometer and transducer installation. In order to gather sufficient borehole data while drilling, START recommended using a 6-inch Overburden Drilling with an Excentric Bit (ODEX) surface casing system and down-the-hole-hammer (DTHH) to explore for the adit. ODEX is a type of surface casing system in which a 6-inch hollow surface casing encloses a DTHH. The casing is advanced into unconsolidated material as the DTHH advances the borehole. Upon encounter with competent rock, the DTHH can continue advancing, while the ODEX casing does not. The inner rods and the DTHH can then be extracted while the borehole integrity is maintained with the ODEX casing. After drilling tasks are completed, the ODEX casing is removed from the borehole. ODEX casing also allows the inner DTHH rods to be switched to HQ diameter continuous coring and/or wireline sampling methods. Precision Drilling, Inc. mobilized to the site with a Boart Longyear DB450 multi-use, track-mounted drill rig. The rig was equipped with 120 feet of percussion hammer rod and 100 feet of ODEX casing. The rig was also outfitted with 120 feet of HQ diameter core tooling to complete the planned drilling program.

It was also planned that drilling would consist of ODEX/DTHH drilling and would be used to advanced boreholes to crystalline bedrock, and continuous coring would be employed to continue borehole advancement. Drilling locations were determined based upon the suspected location of the adit as displayed in the 1899 map (Figure 3) and by interpretation of the geophysical data. Project budget allowed for the drilling of up to 6 boreholes at an average depth of 60 feet. Therefore, 6 borehole locations were identified. Three of the locations were drilled as planned. Two locations were added based upon field conditions and data obtained during the drilling of the initial boreholes.

Two of the borehole locations are inclined boreholes, RBMW01 and RBLN2E50 (Figure 4). For the purposes of describing the geometry of these boreholes, conventional geologic trend-and-plunge notation is employed. Trend-and-plunge consists of an azimuth and a declination. The azimuth describes the direction of the inclined borehole, and the declination describes the angle from vertical in which the borehole dips. For example, S4°W/20.3° is the trend-and-plunge of borehole RBMW01. This means that the borehole points to the west 4° from true south and dips at an angle from vertical of 20.3°.

The following drilling program was executed:

1. Due to the existence of an anomaly beneath RBLN2E48, a vertical borehole was drilled to a depth of 40 feet. Water was encountered at 19 feet, consistent with the Anomaly 1 location.; however, the adit was not encountered at anticipated depths. This hole was abandoned.

2. A vertical borehole was drilled at RBLN1E68. Again, the adit was not encountered at anticipated depths. Water was encountered at 16 feet, consistent with Anomaly 1. This hole was also abandoned at a total depth of 30 feet.

3. A vertical borehole was drilled at RBLN2E50. The adit was not encountered at this location at anticipated depths. This hole was abandoned at 33 feet.

   It was determined that Anomaly 1 identified in the geophysical survey was a subsurface water conduit. The amount of water in the first three boreholes was not significant, as continued drilling operations moved past the water-bearing intervals within 3 to 5 feet. Because of a lack of significant amounts of water, it was assumed that the boreholes were not proximal to the adit.

4. A vertical borehole was attempted at location RBLN1E76. The location and geometry of this borehole was dictated by two criteria: The Red and Bonita adit flow is approximately 8 feet wide and is noted at the ground surface by significant amounts of yellow boy staining (Photos 3 and 4). It was determined that drilling an exploratory boring close to the Red and Bonita adit flow (near RNLN1E76) may intersect the adit, and if not, it may yield amounts of water that would be suggestive of the adit location. Secondly, this location is near geophysical Anomaly 2. During attempts to move the drill rig to the location, the drill pad began to fail and the rig had to be offset northward to stable ground.

In order to intersect location RBLN1E76 at a depth of approximately 25 vertical feet beneath the drill pad, the drill rig was moved north 10.5 feet to stable ground, and it was determined that the borehole had to be advanced at an angle of 20.3° in a southerly direction from near location RBLN1E73. This borehole (RBMW01) was drilled, and it intersected a void interpreted as the adit at 31 feet down-the-hole distance. The hammer was advanced through the void and revealed a space that was at least 2.5 feet wide and 6 feet tall. Compressed air was allowed to blow into the void for approximately 15 seconds, and within approximately 30 seconds the water flowing from the Red and Bonita adit became rust-red and cloudy, suggesting that the air stirred up sediment in the adit that, in turn, discharged from the side of the hill (Photo 23). The water from the Red and Bonita adit flow cleared up within 5 minutes after the air was turned off.

5. Piezometer RBMW01 was installed near location RBLN1E73, S4°W/20.3°. Well construction details can be found in Appendix C and are detailed below. The water level in the well was measured after construction and was 23.6 feet below ground surface (bgs). The well itself terminates at 34.2 feet bgs. The well has a 37.8 feet bgs down-the-hole distance. Furthermore, RBMW01 is screened in the adit approximately 28 feet inby the Red and Bonita adit flow, suggesting that the adit blockage is less than 28 feet thick.

6. Another borehole was advanced to intersect the adit at RBLN2E50, S33°E/36.3°. This borehole intersected the adit at approximately 59 feet inby the Red and Bonita adit flow and 31 feet inby RBMW01. RBLN2E50 encountered bedrock to a down-the-hole distance of approximately 36 feet. The hammer was advanced to a total depth of 43 feet, indicating that there was at least 2.5 feet of horizontal width to the adit, and the adit must also be at least 4.1 feet tall. Like RBMW01, discharge at the Red and Bonita adit flow clouded after the adit was penetrated, suggesting that the adit was full of water at this location and not blocked by cave-in (Photos 34 and 35). Because the borehole was inclined and the hole was held open at the near surface with ODEX casing, no water level was obtained. A water level indicator would not slide down the declined hole at that angle. Despite this fact, during the drilling no cuttings returned wet except at the interval from 27 to 28 feet, suggesting that water filled the adit, but was not at levels significantly higher than the adit itself.

   The DTHH did not encounter resistance after penetrating the adit, suggesting that there is no blockage at this location.

3.5.1 Borehole Geology

The same rock units were present in all boreholes as evidenced by drill cuttings sampled during drilling. Approximately 15 to 20 feet of poorly consolidated colluvium overlies a coarsely grained sand that is consolidated and lithified. The colluvium consists of poorly-sorted angular gravel- to sand-sized grains. The sand is a coarse, tan-brown, poorly sorted sand. The sand grains are up to 0.5 cm in size.

Because the boreholes at the site were drilled with the ODEX/DTHH system, core samples of borehole geology were not obtained. However, in both boreholes that intersected the adit, ODEX surface casing was advanced only to a depth of approximately 18 feet. Both boreholes stayed open after the DTHH hammer was removed. In RBLN2E50, a cementing plug was emplaced at a depth of 27 feet, and approximately 500 pounds of high solids bentonite grout filled the borehole upward. This is suggestive that the sandstone unit encountered beneath the colluvium is compacted and lithified.

Regionally, crystalline bedrock consists of Tertiary-aged, intermediate composition volcanic rocks, primarily ash-flow tuff and volcanoclastic sedimentary rocks. These rocks are extensively fractured at the regional scale, and locally can be heavily mineralized (USGS 2007).

The deepest penetration into the hillside was at RBLN2E50, a borehole that is 35 feet down-the-hole and 59 feet inby the Red and Bonita adit flow. No crystalline bedrock was encountered in this borehole. Furthermore, no crystalline bedrock was encountered in any of the drilled boreholes; therefore, none of the boreholes were cored.

3.5.2 Well Construction and Borehole Abandonment

Drilling logs and well completion diagrams are presented in Appendix C. All exploratory boreholes and piezometer RBMW01 were constructed in accordance with State of Colorado Office of the State Engineer Rules and Regulations Rule 14 and Rule 16 (State of Colorado 2006a, b). Exploratory vertical boreholes RBLN2E48, RBLN1E68, and RBLN2E50 were abandoned with a combination of high-solids bentonite grout, drill cuttings, and concrete.

Piezometer RBMW01 was constructed using a 2-inch schedule 40 polyvinyl chloride (PVC) well screen and blank PVC riser. The well was screened from 35 to 20 feet down-the-hole. Because the well is completed into the mine adit, a K-packer was installed approximately 1 foot above the screened interval at a location within competent bedrock. A K-packer is a 6-inch rubber ring that is fitted around the PVC riser and prevents well completion materials from flowing down the annulus into the void space of the adit (Photos 26 and 27). Above the K-packer, bentonite chips were poured into the annulus to a depth of 14 feet bgs. A high-solids bentonite grout (70 percent bentonite, 30 percent silica) was pumped into the annulus above the bentonite plug using a tremie pipe to approximately 1 foot bgs. Concrete filled the annulus from the surface to 1 foot bgs. A 3-foot by 3-foot concrete apron was constructed around a 4-foot steel stickup that encased the PVC riser. The steel stickup was emplaced approximately 3 feet bgs around the PVC riser.

Borehole RBLN2E50, S33°E/36.3°, also intersected the adit though no well was constructed at this location. Rather, a 6-inch cementing plug was placed at 27 feet (above the adit and into competent rock). Approximately 450 pounds of bentonite grout was pumped into the borehole with a tremie pipe to a depth of approximately 7 feet bgs. Wet concrete was poured down the hole as the ODEX casing was removed to a depth of approximately 2 feet bgs. Dry concrete mix was poured into the remaining 2 feet of the borehole. All drill cuttings were returned to exploration boreholes or left along the drill pad.

3.6 ADIT GEOMETRY

The orientation of the Red and Bonita Mine adit does not appear to be consistent with the alignment shown in the 1899 map. Based on the October borehole locations the adit trends S83°E for at least 59 feet. Initial interpretations of the 1899 map suggest that the adit trended to the east at N61°E for 50 feet inby, and at 50 feet the adit direction changes to S79°E inby. There may be three explanations for the differences observed:

1. The portion of the adit that was drilled in October represents the portion of the adit shown as the initial 50 feet on the 1899 map. If this is true, then at some point beyond 59 feet inby, the adit should dogleg to the south approximately 30°.

2. The portion of the adit drilled represents the portion of the adit beyond the initial dogleg represented on the 1899 map. If this is true, then the adit may continue its trend as shown on the map.. The current opening where water flows from the adit may represent a second opening created by a blow-out after mining ceased. Timbers observed just south of adit flow at the top of the dump may indicate the location of the original portal. A collapse and blockage in the first section of the mine adit, before the dogleg, may have allowed water to build up and cause a blow-out of the unconsolidated colluviums. . If this is true, the Red and Bonita adit flow is not co-located with the entrance to the mine; rather, the mine entrance may be collapsed and exist south of the Red and Bonita adit flow.

3. Finally, here may not be a dogleg in the initial 50 foot long portion of the adit that trends S83°E.

Figure 4 displays the anticipated adit corridor. Drilling revealed that the adit is likely to be at least 6 feet high and 3 feet wide. However, it should be noted that though the boreholes intersected the adit in two places, the exact geometry of the adit between points is uncertain. Therefore, the yellow portion of the corridor represents the area of highest likelihood of the adit location HORIZONTAL DISTANCE, while lighter and darker colors represent areas of less likelihood.

3.7 TRANSDUCER INSTALLATION – PARSHALL FLUME LOCATION RECONNAISSANCE

Subsequent to initial geophysical activities at the site, START visited all potential pressure transducer locations to inspect the existing Parshall flumes at these locations to determine their suitability as sampling points. START measured flume dimensions and noted site conditions as follows:

- Mogul Mine Parshall Flume: The flume is installed approximately 10 feet inby the entrance of the Mogul Mine adit. The flume is secured in an earthen transverse dike and reinforced with rebar and concrete. The flume is a fiberglass 3-inch neck with an 8-inch diameter stilling well. The flume is 24 inches high and 3 feet long. The stilling well contained 6 inches of water and approximately 2 inches of sediment. The stilling well also had a rind of yellow boy buildup at its waterline and in the flume drain screen.
- Upper Gold King Parshall Flume: This flume is embedded in concrete at the terminus of a 24-inch deep concrete diversion canal. It is the same type of flume described above

for the Mogul Mine. The top-cover to this flume was missing. The stilling well contained 10 inches of water.

- American Tunnel Parshall Flume: The American tunnel flume is covered by an A-frame snow shelter and a plastic housing that inhibits access to the stilling well. Like the other flumes, it is a 3-inch necked flume, 24 inches tall and 3 feet long. It is secured to the ground in an earth transverse dike and rebar. The stilling well is 8 inches in diameter and contained yellow boy sediment in the base of the well and staining and sediment buildup at the waterline. There were 8 inches of water in the well at the time of observation.

Because all of the existing Parshall flumes are of the same make and dimensions, it was decided by START that the same transducer setup could be deployed at each of the locations. In-Situ® Troll® 200 pressure transducer/conductivity probes with ruggedized custom cabling were selected for use at the site. The transducers have the capacity to store large amounts of data and to function over long periods of time without servicing, and are designed to handle the winter extremes anticipated at the site.

3.8 FINAL TRANSDUCER INSTALLATION AND SERVICING, SITE CLEANUP

During drilling operations, START installed pressure transducers at all the Parshall flume locations. Three Troll® 200 pressure transducers with conductivity probes were installed using the existing Parshall flume stilling wells. Each transducer included a 10-foot ruggedized data communication cable and desiccant pack. All flume transducers were in place and logging data on October 2, 2010. START mobilized to the Red and Bonita Mine site in mid-October 2010. The purpose of this trip was to install a pressure transducer into piezometer RBMW01, to service and test all transducer locations, to conduct field oversight with the excavation contractor, to install erosion control structures and an access gate at the site, and to install a snow-shelter over the exposed Gold King #7 transducer.

An Aquatroll® 200 pressure transducer with conductivity probe was installed on October 12, 2010 in the RBMW01 piezometer. It was installed at 33 feet deep down-the-hole, or 30.95 feet vertical depth from the well apron. (Well RBMW01 is a declined well at 20.3° to the south.) (Photos 41 and 42) Water in the well was encountered at approximately 24 feet bgs. The transducer was set up to record 4 intervals per day.

Following the transducer installation, START proceeded to Upper Gold King #7 to construct a snow-shelter over the transducer at that location. One START member remained at the site to complete removal of the drilling pond, install silt fencing, and complete the construction of a gate at the north end of the Reliance property on the north access road.

The pond liner was removed and the Red and Bonita adit flow was returned to its original channel. Silt fencing was installed below the drilling pad and along the north access road. It extended from the Red and Bonita adit flow, north approximately 200 feet parallel to the access road to reduce down-slope erosion at the site during the winter. Silt fence was also placed at the toe of the drill pad, north of the Red and Bonita adit flow area, and along the upslope-side of the drill pad above the Red and Bonita adit flow area. Approximately 50 feet of straw sediment waddle was placed on the upslope-side of the north access road immediately north of the drill pad to inhibit sedimentation and to stabilize the road-cut approach to the drill pad.

A 13-foot metal cattle-gate was installed on the access road at the Reliance claim on the north side of the property on October 12. Two 6 by 6 treated posts were placed to support the gate with approximately 100 pounds of concrete anchor at each post location. The gate was hung after concrete was allowed to cure overnight.

A snow shelter was constructed over the Upper Gold King #7 Parshall flume in order to keep snow from filling the stilling well, and to provide a shelter for the pressure transducer stickup. A plasticized storage box was placed over the Parshall flume and insulated. The box is held down with 640-pound draw strength cabling anchored to 18-inch metal spikes. Concrete was also poured around the metal spikes for stability. All cabling is transverse to the short axis of the shelter box to maximize the stability of the box itself and to provide support for any loading by snow from the sides of the box. Ballast was placed inside of the box adjacent to the flume stilling well to further provide stability.

After all other site-related activities were completed, log data from all transducers were downloaded, and the desiccants were checked, as it was assumed that this trip represented one of the last accesses and servicing for the transducers prior to winter snowfall. All transducers were in working order and downloaded properly. It should be noted that approximately 0.2 millimeter of yellow boy had built up on transducers at Gold King #7, the Mogul Mine, and the American tunnel.

It is recommended that servicing of the transducers, download, cleaning, and inspection of stilling well harnesses, be conducted at least once more. If site access is possible, a mid-winter, and an early spring servicing trip is further recommended as yellow boy buildup may eventually occlude the conductivity probe and may inhibit accurate readings in the pressure transducer.

3.9 SUMMARY OF FINDINGS

- Geophysical EMI exploration combined with exploratory drilling revealed the location of the adit and indicated that additional subsurface water was present at the Red and Bonita site.
- The mine adit trends N87°E from the Red and Bonita adit flow for at least 59 feet inby. Based on the angle of the drilling entry into the adit, the current opening is likely 3 feet wide and 6 feet tall. Based on the second boring into the adit, it does not appear to be blocked beyond 28 feet inby the Red and Bonita adit flow.
- Crystalline bedrock was not encountered during drilling; however, rocks overlying the adit are compacted and lithified. Rock types encountered consisted of compacted colluvium overlying coarse, poorly sorted sandstone.
- Small amounts of subsurface water exist in the subsurface at varying depths. This water does not appear to be related to the Red and Bonita mine adit, and may be controlled by other subsurface features such as bedrock fractures.
- Water levels in RBMW01 in September and October 2010 were between 23 and 25 feet bgs, which corresponds to the same level as the Red and Bonita adit flow. The adit itself is full of water, but not under head to 59 feet inby the Red and Bonita adit flow.
- RBMW01 is a 2 inch schedule 40 PVC inclined well with a trend and plunge of S4°W/20.3°. It has a total depth of 37.8 feet down-the-hole. The well is screened from 20-35 feet down-the-hole. A K-packer is installed at approximately 34 feet. The well is completed with bentonite and high-solids bentonite grout to approximately 1 foot bgs. A 4-foot x 4-foot concrete apron encases a 7-foot steel stickup that is sunk 3 feet bgs, leaving a total stickup 4 feet above ground. The wellhead is capped with a PVC J-plug and locked with a keyed padlock.
- An Aquatroll® 200 pressure transducer with conductivity probe is installed in the well at 33 feet down-the-hole. It is recording water level and conductivity measurements 4 times per day and storing the data in onboard storage for download upon site visitation.

4.0 REFERENCES

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URS Operating Services, Inc. (UOS). 2005. "Technical Standard Operating Procedures for the Superfund Technical Assessment and Response Team (START), EPA Region 8." September 2005.

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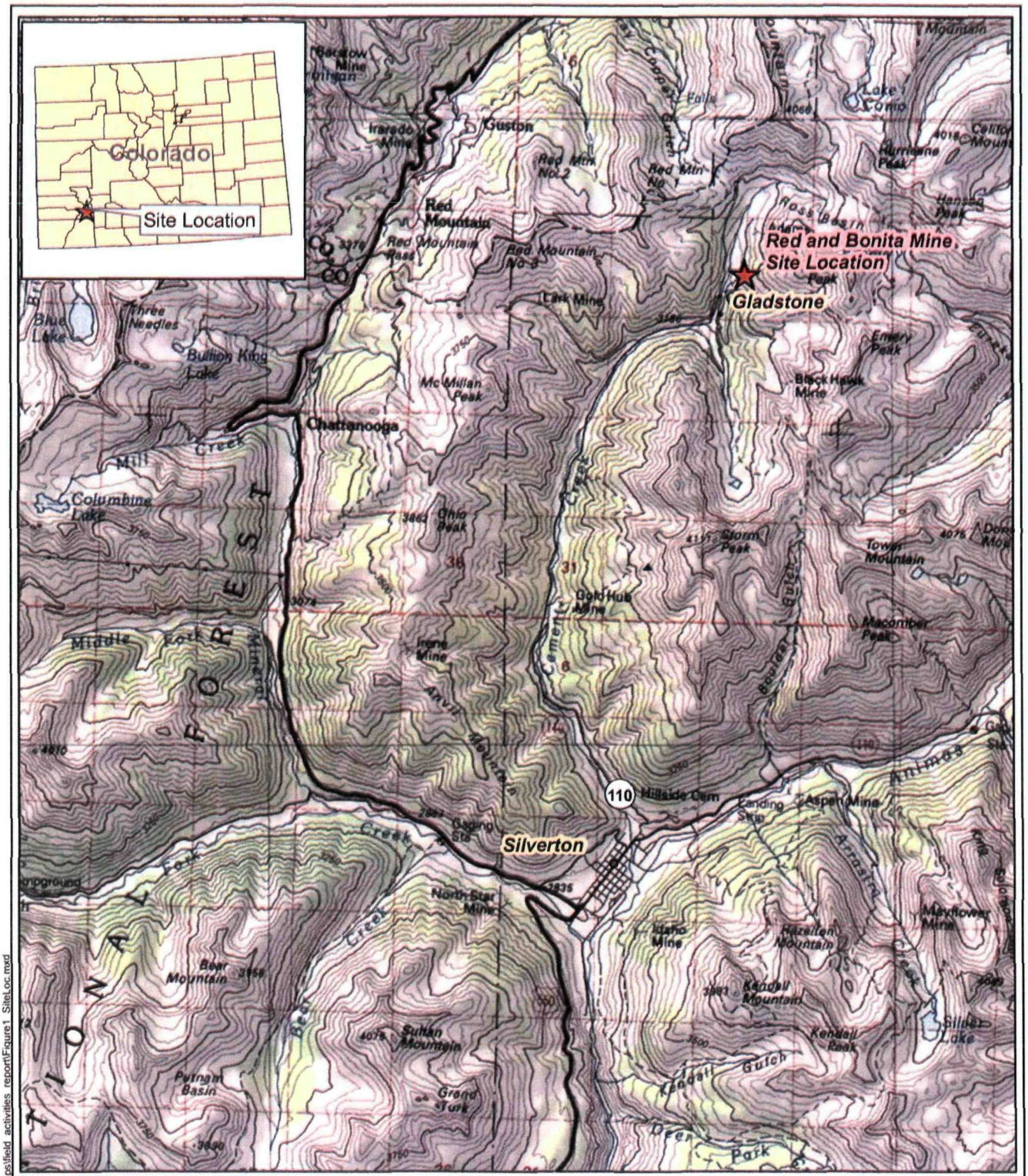

Projection System:
Universal Transverse
Mercator Zone 13 North
North American Datum 1983

1 inch Page Size: 8.5 x 11

TDD Title: **Red and Bonita Mine**

Figure: 1

Figure Title: Site Location Map

TDD County: San Juan TDD: 1008-01

TDD State: CO Date: 12/2010

URS
OPERATING SERVICES

Sources:
Arcservices World Topmap

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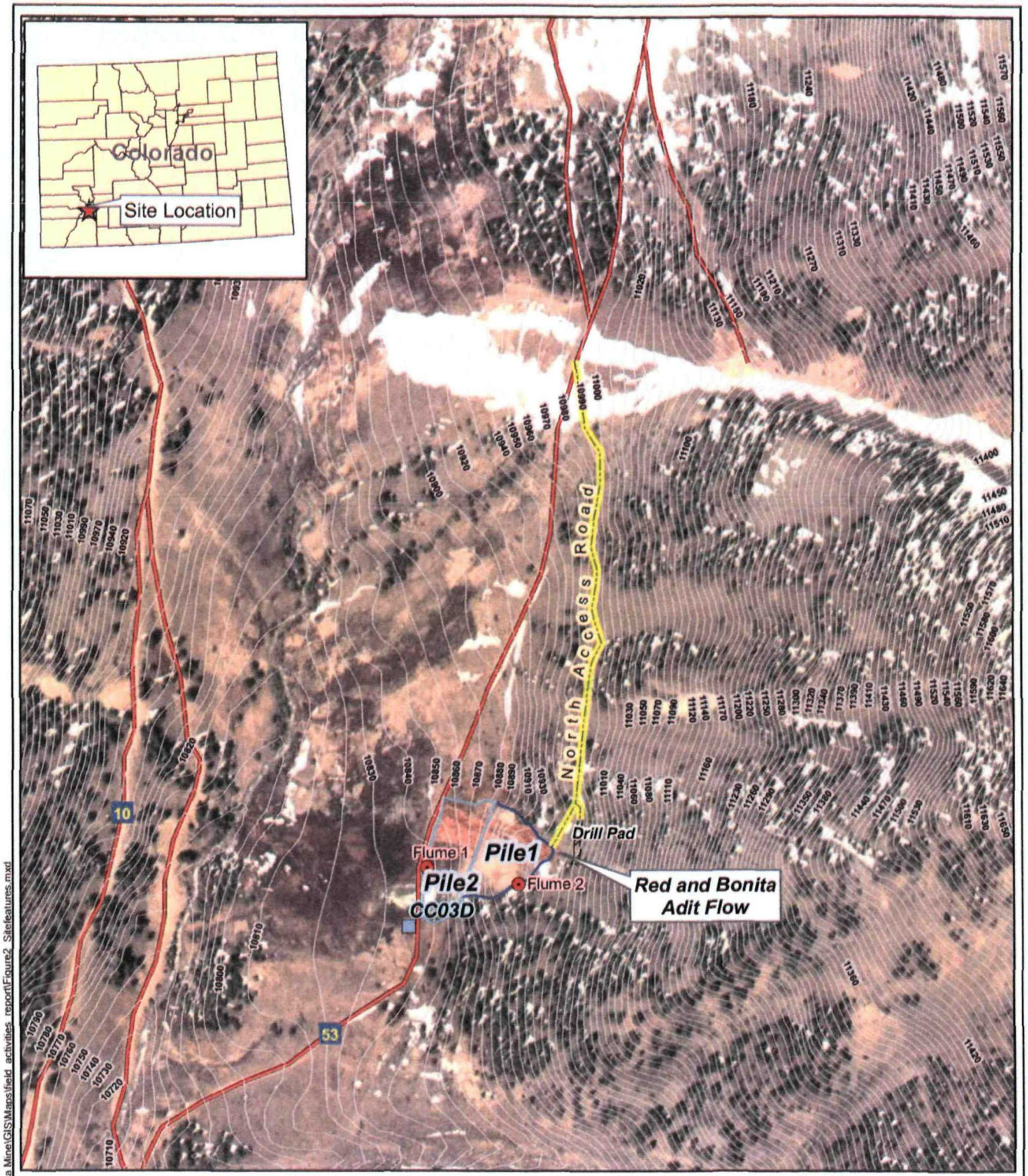

Legend

- EPA Sample Location
- 53 = County Route

0 50 100 200 300 400 500 Feet

1 inch Page Size: 8.5 x 11

TDD Title: **Red and Bonita Mine**

Figure: 2

Figure Title: Site Features

TDD County: San Juan

TDD State: CO

TDD: 1008-01

Date: 12/2010

URS
OPERATING SERVICES

Projection System:
Universal Transverse
Mercator Zone 13 North
North American Datum 1983

Sources:
Bingmaps

Created: 10/29/2010 Drawn By:joe_gilbert
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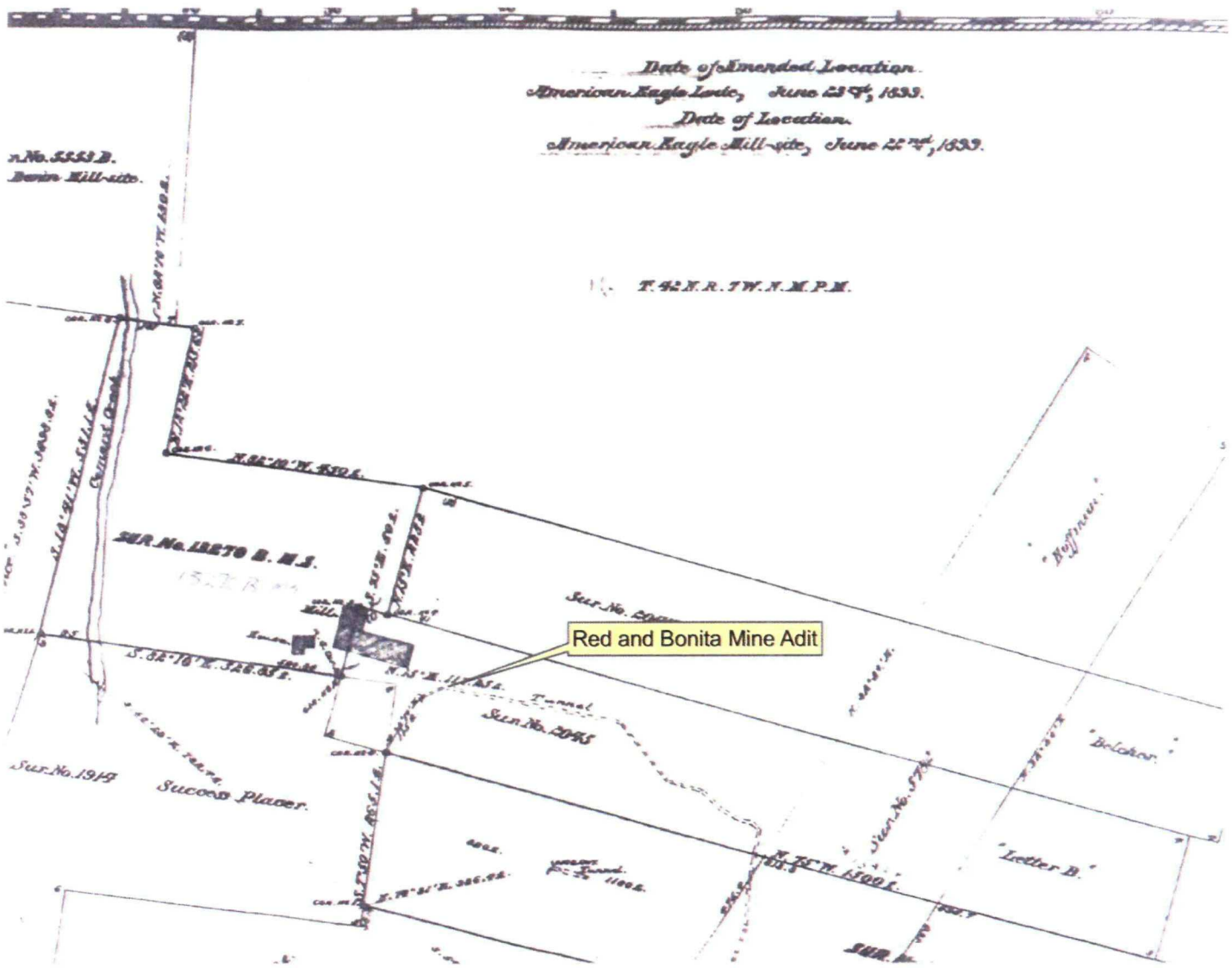

NOT TO SCALE

1 inch Page Size: 8.5 x 11

TDD Title: **Red and Bonita Mine**

Figure: 3

Figure Title: 1899 Survey Map of Red and Bonita

TDD County: San Juan TDD: 1008-01

TDD State: CO Date: 12/2010

URS OPERATING SERVICES

Sources:

Created: 10/29/2010 Drawn By: joe_gilbert
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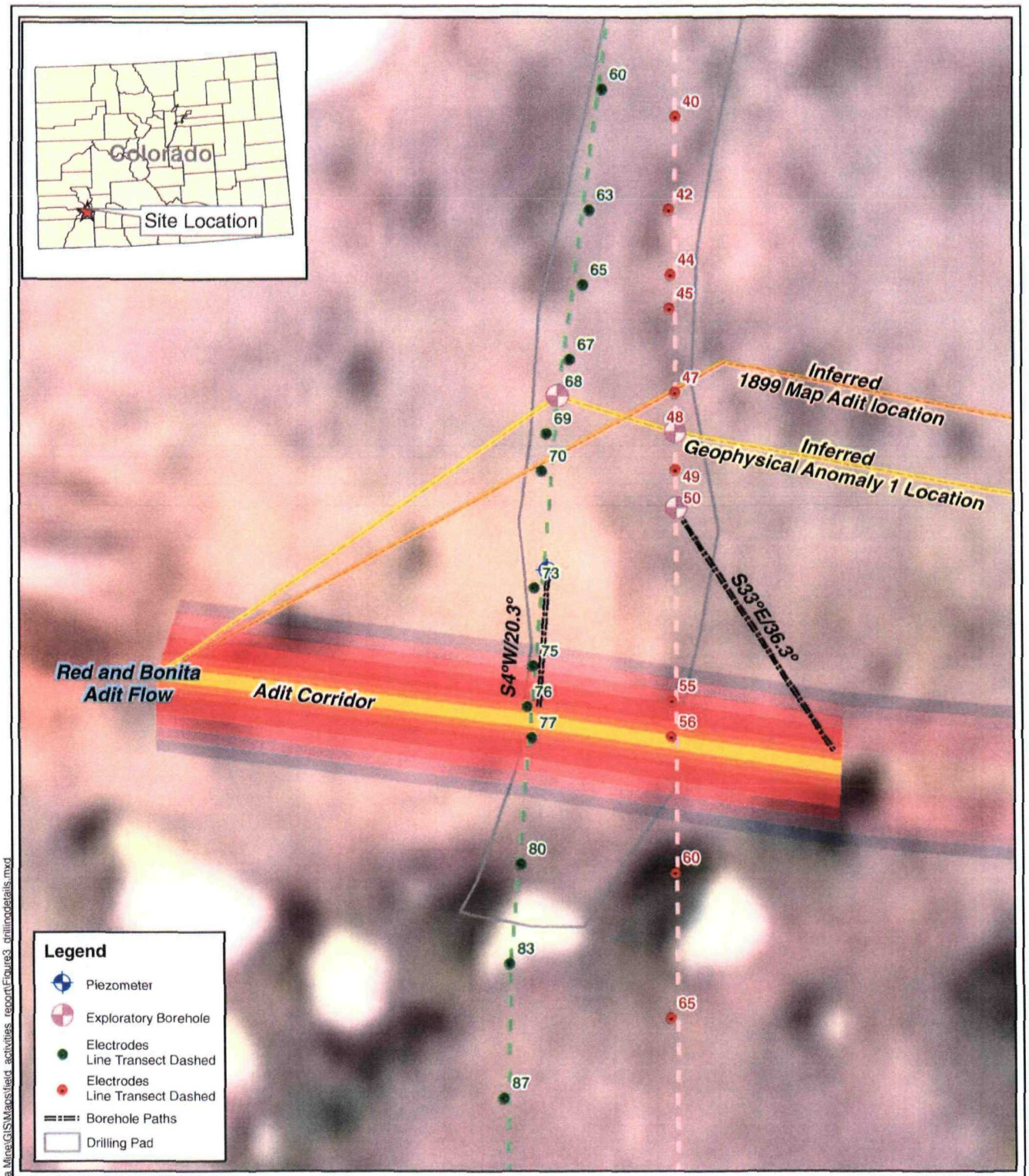


Projection System:
Universal Transverse
Mercator Zone 13 North
North American Datum 1983

Feet
0 5 10

TDD Title: **Red and Bonita Mine**

Figure: 4

Figure Title: Drilling Details

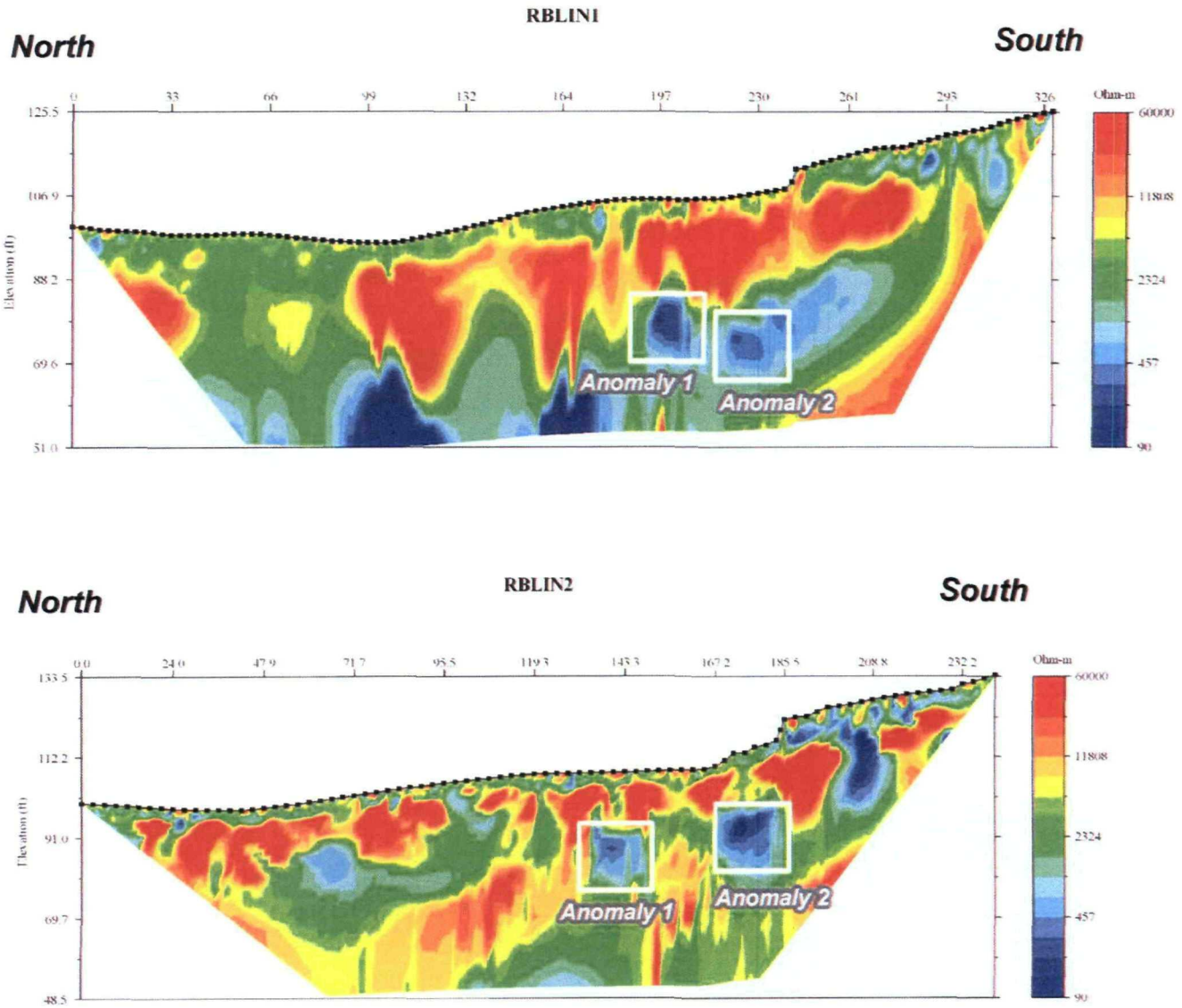
TDD County: San Juan
TDD State: CO

TDD: 1008-01
Date: 12/2010

URS
OPERATING SERVICES

Sources:
Bingmaps
UOS GPS acquisition 2010

Created: 10/29/2010 Drawn By:joe_gilbert
File Location: T:\START3\Red and Bonita Mine\GIS\Maps\field_activities_report\Figure3_drillingdetails.mxd



NOT TO SCALE
Elevations are Relative

1 inch Page Size: 8.5 x 11

TDD Title: **Red and Bonita Mine**

Figure: 5

Figure Title: Electrical Resistivity Model Results

TDD County: San Juan
TDD State: CO

TDD: 1008-01
Date: 12/2010

URS OPERATING SERVICES

Sources:

Created: 10/29/2010 Drawn By: jos_gilbert
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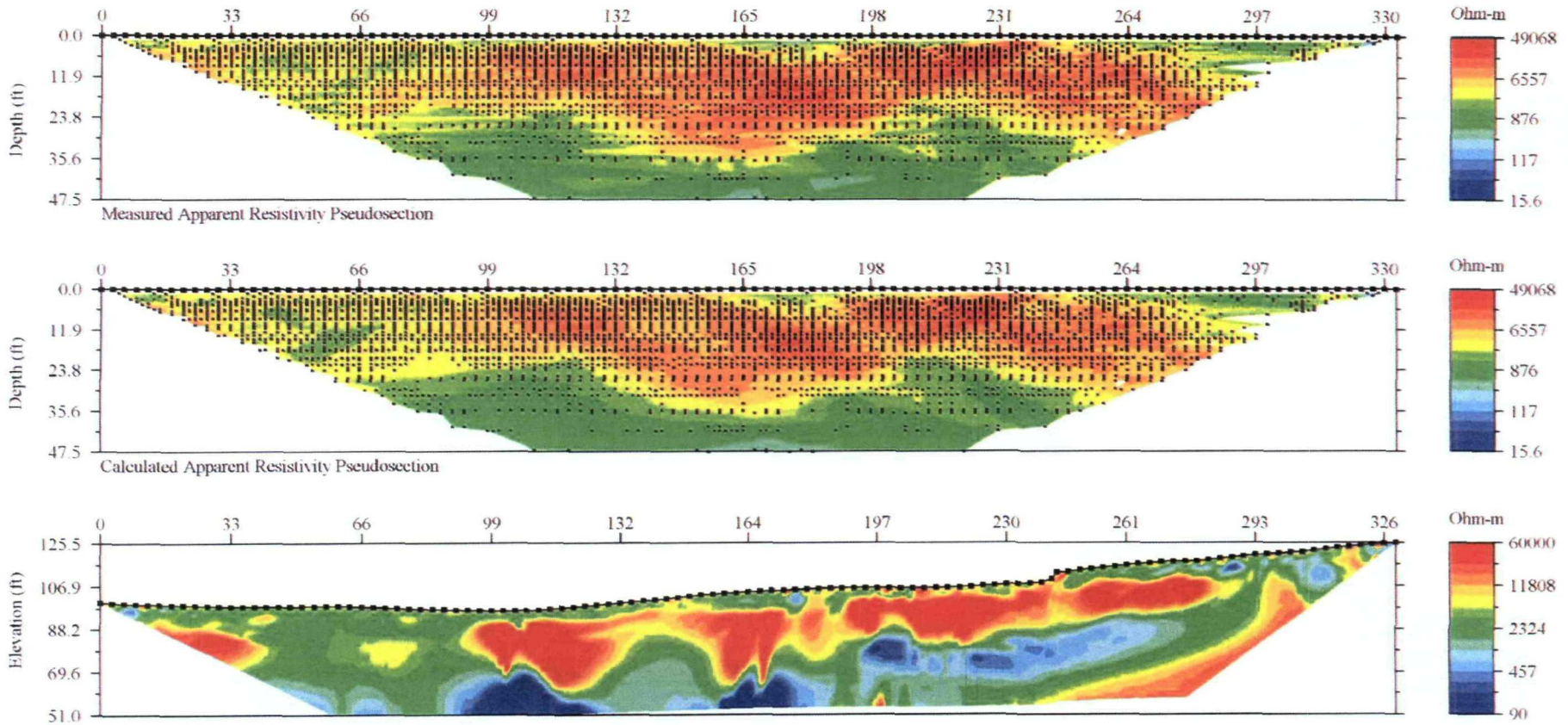

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Elevations are Relative

1 inch Page Size: 8.5 x 11

TDD Title: **Red and Bonita Mine**
Figure: D-1
Figure Title: RBLN1 Electrical Resistivity Pseudosections and model results
TDD County: San Juan
TDD State: CO
TDD: 1008-01
Date: 12/2010

URS
OPERATING SERVICES
Sources:

Created: 10/29/2010 Drawn By: joe_gilbert
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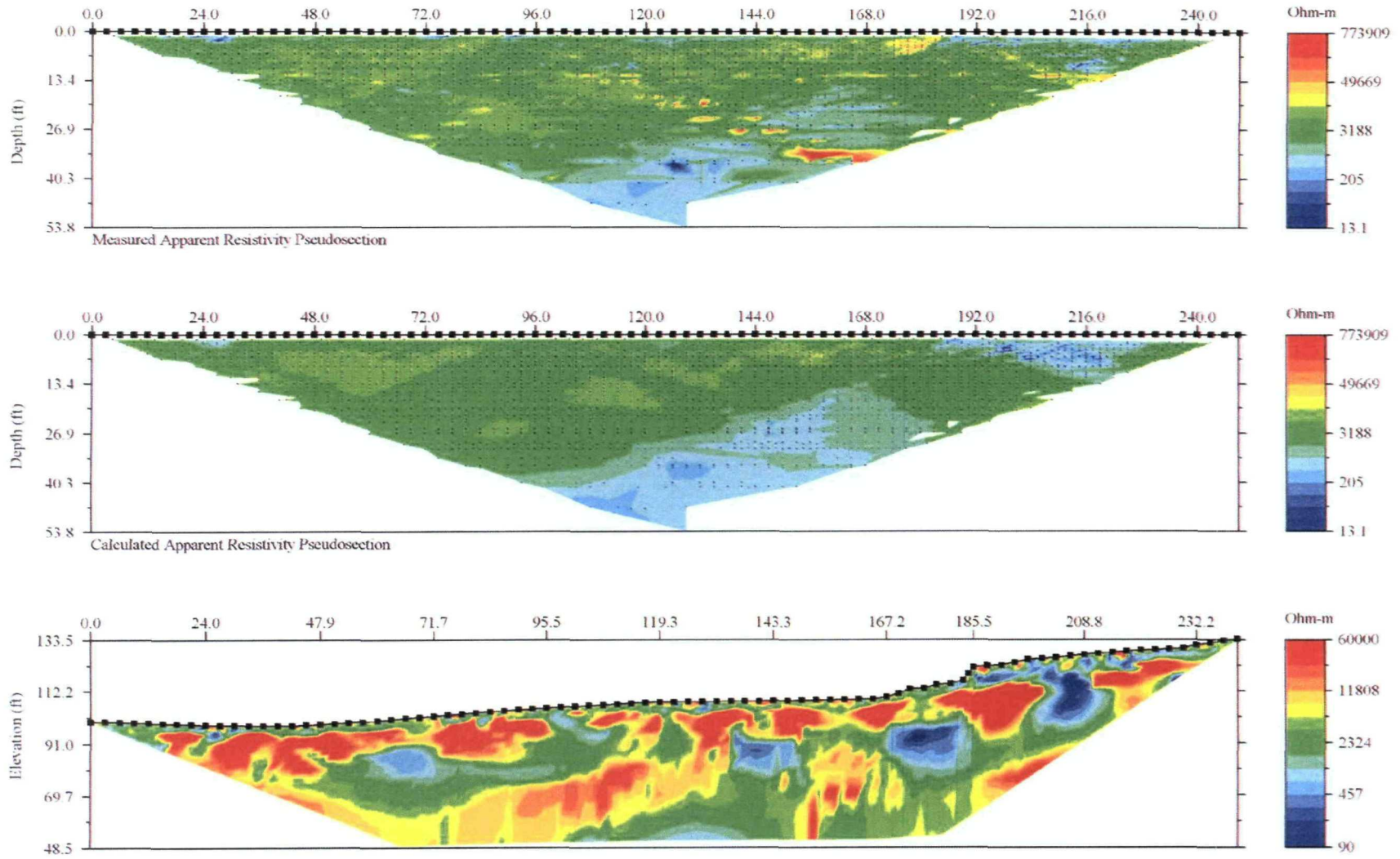

NOT TO SCALE
Elevations are Relative

1 inch Page Size: 8.5 x 11

TDD Title:	**Red and Bonita Mine**
Figure:	D-2
Figure Title:	RBLN2 Electrical Resistivity Pseudosections and model results
TDD County:	San Juan
TDD State:	CO
TDD:	1008-01
Date:	12/2010

URS
OPERATING SERVICES

Sources:

Created: 10/29/2010 Drawn By: joe_gilbert
File Location: T:\STARTS\Red and Bonita Mine-01\5\Maps\field_activities_report\Figures\4_geophysical_lines.mxd

Table 1
Adit Flow Water Parameters

Location / Date Collected / Parameter	CC03D 5/19/2009	CC03D 6/17/2009	CC03D 7/14/2009	CC03D 8/18/2009	CC03D 9/22/2009	CC03D 11/18/2009	CC03D 2/18/2010	CC03D 3/18/2010	CC03D 4/14/2010	CC03D 6/2/2010	RBSW01 6/15/2010	UAAD003 10/28/2010
pH	5.86	6.40	6.50	6.22	6.35	5.95	5.44	5.76	5.94	5.94	5.66	6.32
Temperature (°C)	9.17	8.28	8.15	6.08	3.89	2.09	3.22	6.85	9.40	6.83	12.8	5.5
Total Organic Carbon (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	--	--	--	--	--
Flow (cfs)	0.749	0.699	0.664	0.676	0.749	--	--	--	0.403	0.488	0.59	--
Chloride(mg/L)	<0.5	<2.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	--	--
Specific Conductance (EC) (µS/cm)	2,070	2,050	2,090	2,100	2,110	2,170	2,181	2,207	2,288	2,207	1,575	2,200
Sulfate as SO4 (mg/L)	1,370	1,150	68.2	1,400	1,370	1,460	1,430	1,450	1,550	1,420	--	--
Dissolved Organic Carbon (mg/L)	<0.50	0.52	<0.50	0.52	<0.50	--	--	--	--	--	--	--
Dissolved Oxygen (mg/L)	7.1	7.6	8.1	7.8	9.5	9.1	8.7	7.9	7.5	7.9	--	--
Salinity (ppt)	--	--	--	--	--	--	--	--	--	--	956	--
Total Dissolved Solids (ppm)	--	--	--	--	--	--	--	--	--	--	1.11	--

°C Degrees Celsius
EC Electrical Conductance
mg/L milligrams per Liter
cfs cubic feet per second
ppm parts per million
ppt parts per thousand
µS/cm microseiverts per centimeter

Table 2
Adit Flow Water Results in µg/L (ppb)

Analytes	Sample Location / Sample Collection Date	CC03D 5/19/2009	CC03D 6/17/2009	CC03D 7/14/2009	CC03D 8/18/2009	CC03D 9/22/2009	CC03D 11/18/2009	CC03D 2/18/2010	CC03D 3/18/2010	CC03D 4/14/2010	CC03D 6/2/2010	RBSW01 6/15/2010
Aluminum	Dissolved	3,320	1,840	2,000	2,640	2,440	3,270	3,920	2,690	2,280	2,770	3,100
	Total	4,030	3,040	3,380	3,500	3,520	3,780	4,410	3,960	3,820	3,850	3,200
Antimony	Dissolved	-	-	-	-	-	-	-	-	-	-	0.14 U
	Total	-	-	-	-	-	-	-	-	-	-	1 J
Arsenic	Dissolved	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	3.3 J
	Total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	3.5 J
Barium	Dissolved	-	-	-	-	-	-	-	-	-	-	14
	Total	-	-	-	-	-	-	-	-	-	-	15
Beryllium	Dissolved	5.93	5.33	5.45	5.8	6.2	6.9	7.2	6.4	6.3	6.2	7.5
	Total	7	6	6	6.6	7.0	7.4	7.4	7.6	7.4	7.1	9.1
Cadmium	Dissolved	33.1	34.4	34.5	34.5	37.5	37.3	38.1	36.5	40.9	38.6	32
	Total	33.3	34.8	34.9	34.6	35.9	37.7	37.5	37.6	37.3	40.4	35
Calcium	Dissolved	395,000	382,000	405,000	408,000	415,000	425,000	457,000	411,000	430,000	398,000	400,000
	Total	-	-	-	-	-	-	-	-	-	-	390,000
Chromium	Dissolved	<2.00	<2.00	<2.00	<2.0	<2.0	<2.0	<2.0	3.3	<2.0	<5.0	1 U
	Total	<2	<2	<2	<2.0	<2.0	<2.0	3.2	3.5	2.5	<5.0	0.66
Cobalt	Dissolved	-	-	-	-	-	-	-	-	-	-	110
	Total	-	-	-	-	-	-	-	-	-	-	110
Copper	Dissolved	41.1	<3.0	3.5	4.5	<3.0	8.9	41.8	11.2	13.8	10.7	1.5 J
	Total	50.6	4.5	6.2	6.9	4.1	8.6	47.1	14.2	18.0	14.3	2.9 J
Fluoride	Dissolved	6.73	5.60	0.45	6.03	6.69	6.67	<0.20	6.73	15.4	7.2	
Iron	Dissolved	80,500	81,200	85,800	85,800	94,100	91,600	83,100	85,600	87,100	83,100	100,000
	Total	86,700	76,700	87,700	88,000	96,700	96,100	82,300	93,500	97,600	89,400	100,000
Lead	Dissolved	8.1	4.1	7.6	9.1	15.4	4.6	4.3	3.6	2.1	8.9	79
	Total	71.2	39.5	36.5	34.0	41.4	37.2	47.2	58.7	55.3	57.7	90
Magnesium	Dissolved	26,400	25,600	26,200	26,600	27,300	28,400	29,500	27,000	27,300	25,900	24,000
	Total	-	-	-	-	-	-	-	-	-	-	26,000
Manganese	Dissolved	32,300	30,800	32,100	32,700	33,700	35,000	35,200	32,900	32,500	31,700	33,000
	Total	33,200	27,900	32,300	32,500	34,600	35,700	34,100	35,100	36,300	33,000	30,000 B

Table 2, cont.
Adit Flow Water Results in µg/L (ppb)

Analytes	Sample Location / Sample Collection Date	CC03D 5/19/2009	CC03D 6/17/2009	CC03D 7/14/2009	CC03D 8/18/2009	CC03D 9/22/2009	CC03D 11/18/2009	CC03D 2/18/2010	CC03D 3/18/2010	CC03D 4/14/2010	CC03D 6/2/2010	RBSW01 6/15/2010
Mercury	Dissolved	-	-	-	-	-	-	-	-	-	-	0.027 JB
	Total	-	-	-	-	-	-	-	-	-	-	0.027 U
Nickel	Dissolved	51.9	47.7	47.9	50.4	55.5	57.3	59.4	55.9	54.7	48.5	56
	Total	52	44	50	52.5	53.8	57.1	56.9	59.1	56.5	55.1	60
Potassium	Dissolved	1,690	1,880	1,740	1,820	1,770	1,830	1,680	1,930	1,580	1,880	1,700 J
	Total	-	-	-	-	-	-	-	-	-	-	2,100 J
Selenium	Dissolved	1.5	1.3	1.1	1.3	1.5	1.6	1.6	1.5	1.2	1.6	1.8 J
	Total	1.7	1.3	1.4	1.5	1.3	1.1	1.7	1.8	1.1	1.8	3.5 U
Silver	Dissolved	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.93 U
	Total	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	0.12 J
Sodium	Dissolved	8,730	9,070	8,850	8,680	8,940	9,450	8,830	9,360	8,680	8,330	9,800
	Total	-	-	-	-	-	-	-	-	-	-	11, 000 B
Thallium	Dissolved	-	-	-	-	-	-	-	-	-	-	0.16 JB
	Total	-	-	-	-	-	-	-	-	-	-	0.3 J
Vanadium	Dissolved	-	-	-	-	-	-	-	-	-	-	0.28 J
	Total	-	-	-	-	-	-	-	-	-	-	0.28 U
Zinc	Dissolved	14,300	13,600	15,000	15,000	16,100	16,400	16,900	15,500	14,200	14,700	14,000
	Total	15,600	13,600	15,500	15,800	16,400	17,400	16,000	16,500	17,500	15,500	15,000

ppb parts per billion
µg/L micrograms per liter
J The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the element is reliable.
U The analyte was not detected at or above the Contract Required Detection Limit (CRDL).
B The analyte was detected in the blank.

Table 3
Waste Rock Sample Results from Metal Analysis

Sample Location Sample Collection Date Analyte	USGS Waste Rock EPA-1312 Leach (SPLP) & ICP-AES (µg/L) 8/15/1997	USGS Waste Rock Passive Leach & ICP-MS (µg/L) 8/15/1997	USGS Waste Rock Total ICP-AES (mg/Kg) 8/15/1997	UOS CC-SO-6 Red and Bonita Waste Rock Pile Total (mg/Kg) 1996
Aluminum	400	98	88,000	819
Antimony	-	2.8		0.61 U
Arsenic	30 U	7.1	31	3 J
Barium	86	3.1	700	138
Beryllium	10 U	-	2	0.21 B
Bismuth	-	-	10 U	-
Boron	69	-	-	-
Cadmium	10 U	6.2	3	0.2 U
Calcium	580	50 U	2,600	126 B
Cesium	-	-	100	-
Chromium	10 U	-	22	0.25 B
Cobalt	10 U	0.79	3	0.2 U
Copper	79	28	180	1,050
Iron	150	2,000	48,000	18,400
Lanthanum	-	-	62	-
Lead	680	190	5,200	961

Table 3, cont.
Waste Rock Sample Results from Metal Analysis

Sample Location Sample Collection Date Analyte	USGS Waste Rock EPA-1312 Leach (SPLP) & ICP-AES (µg/L) 8/15/1997	USGS Waste Rock Passive Leach & ICP-MS (µg/L) 8/15/1997	USGS Waste Rock Total ICP-AES (mg/Kg) 8/15/1997	UOS CC-SO-6 Red and Bonita Waste Rock Pile Total (mg/Kg) 1996
Lithium	10 U	-	20	-
Magnesium	410	160	6,900	34 B
Manganese	120	82	1,300	4.1 J
Mercury	-	-	-	0.32 J
Molybdenum	20 U	4	29	-
Nickel	10 U	0.98	8	0.2 U
Phosphorus	5,600	-	2,500	-
Potassium	2,300	-	39,000	421 B
Scandium	-	-	16	
Selenium	-	1	-	-
Silicon	1,800	-	-	-
Silver	-	-	17	1.7 B
Sodium	660	150	3,900	152 B
Strontium	140	35	700	-
Tellurium	-	<0.2	-	-
Thallium	-	0.16	-	0.41 U
Thorium	-	-	10	-

Table 3, cont.
Waste Rock Sample Results from Metal Analysis

Sample Location Sample Collection Date Analyte	USGS Waste Rock EPA-1312 Leach (SPLP) & ICP-AES (µg/L) 8/15/1997	USGS Waste Rock Passive Leach & ICP-MS (µg/L) 8/15/1997	USGS Waste Rock Total ICP-AES (mg/Kg) 8/15/1997	UOS CC-SO-6 Red and Bonita Waste Rock Pile Total (mg/Kg) 1996
Tin	-	-	7	-
Titanium	50 U	-	3,800	-
Uranium	-	0.2		-
Vanadium	10 U	<0.05	160	1.5 B
Zinc	1000	350	980	25.8

µg/L micrograms per liter
mg/Kg milligrams per kilogram
B The analyte was detected in the blank.
J The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the element is reliable.
U The analyte was not detected at or above the Contract Required Detection Limit (CRDL).

APPENDIX A

Photolog

Photo 1
Red and Bonita Mine waste piles. Note water flowing over piles and scattered cultural debris in and around piles.

Photo 2
Area below the Red and Bonita Mine site showing area affected by Red and Bonita adit flow.

Photo 3
Pooled water at the top of the waste rock piles seen in Photo 1. Water is from the Red and Bonita adit flow. View south.

Photo 4
Red and Bonita adit flow.

Photo 5
The Red and Bonita adit flow. Note that the adit itself is completely collapsed and not discernable from the surrounding hillside. View east.

Photo 6
Red and Bonita secondary flow off the south side of the waste piles. This flow was stopped as a result of EPA sampling activities in August, 2010.

Photo 7
Waste rock Pile 1. Photo taken from the south side of the pile, view to the north.

Photo 8
Waste rock Pile 1. View north.

Photo 9
Water from the Red and Bonita adit flow flowing over Pile 1. View north from a former access road that separates Pile 1 from Pile 2.

Photo 10
Water flow measurements taken from the toe of Pile 2.

Photo 11
Temporary flume setup at the toe of Pile 2 for flow measurements. This location averaged 233 gpm.

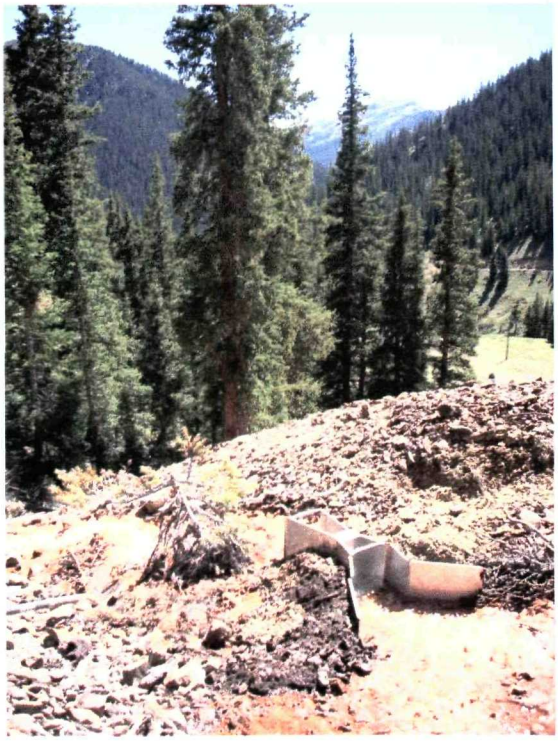

Photo 12
Second water flow measurement location taken from the top of Pile 1. Flow at this location was approximately 30 gpm.

Photo 13
Trees on the northern access road prior to road improvements GPS antenna is 6.5 ft. Photo taken on 09/02/10.

Photo 14
View South: Site improvements after 09/10/10 excavation work was completed.

Photo 15
Resistivity line RBLN01 taken on 10/21/10.

Photo 16
RBLN01 on 10/21/10, note electrode spacing is 3 ft. View south.

Photo 17
RBLN01 on 10/21/10. View north.

Photo 18
Programming of the SuperSting IP meter on 10/21/10, RBLN01. Note the scarp on the slope-side of the drilling pad behind Megan Adamczyk (UOS) and John Nicholl (URS).

Photo 19
Switchbox setup and battery arrangement for the SuperSting resistivity meter. Note primary and boost batteries.

Photo 20
Application of salt water and fine soil to electrode locations to improve contact resistance for survey. On RBLN01.

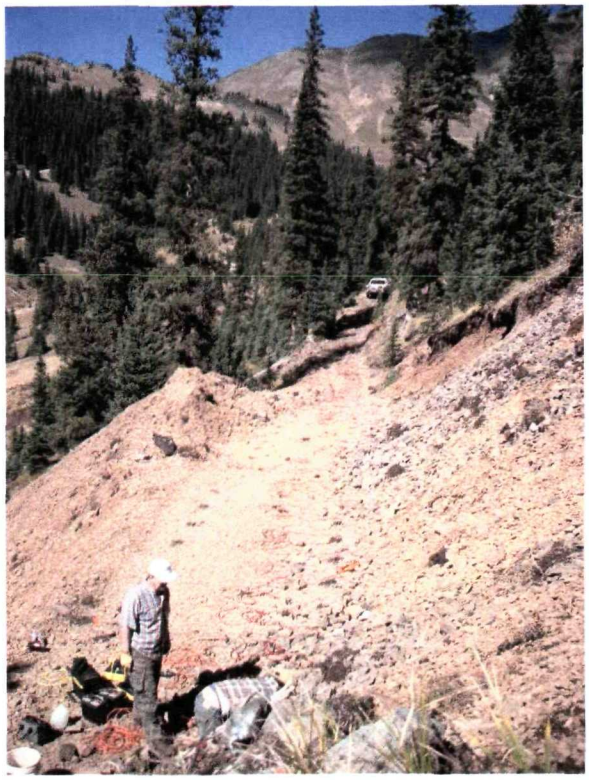

Photo 21
View north of RBLN02.

Photo 22
Elevation survey of RBLN02 and RBLN01.

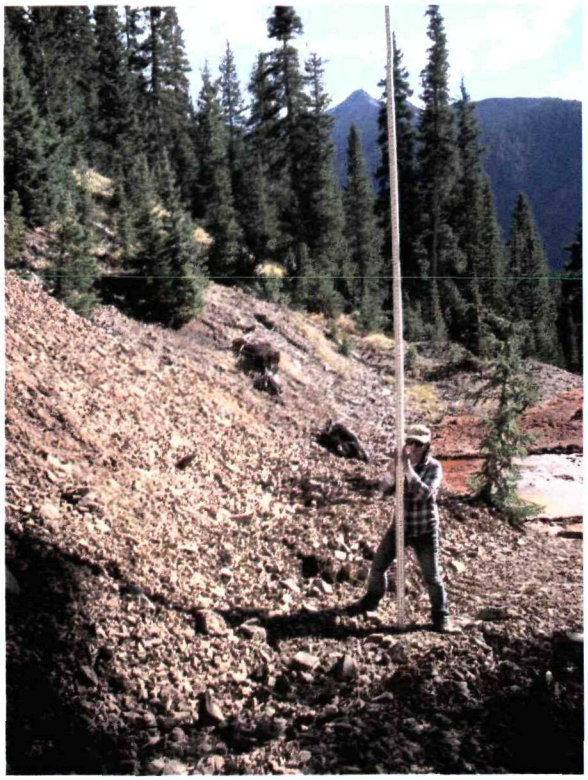

Photo 23
Elevation survey of drilling pad for drilling calculations.

Photo 24
Site cleanup and follow-up excavation work prior to drilling on 09/27/10.

Photo 25
Expansion of drill pad in the east-west direction prior to drilling. Note electrode demarcation on the ground for drilling reference.

Photo 26
Pond liner dam created to facilitate drilling. Note the clarity of the water flowing out of the Red and Bonita Mine adit to the left of photo.

Photo 27
Ponded water for drilling. Note the location of the Red and Bonita Mine adit flow.

Photo 28
Drill rig tracking up to the site, view to the south.

Photo 29
Drill rig on site drilling well RBMW01. Note ODEX surface casing being advanced.

Photo 30
Drilling RBMW01. View north.

Photo 31
Cloudy discharge water emanating from the Red and Bonita adit flow. Note the color relative to the discharge in Photos 14 and 15.

Photo 32
15 ft. of Schedule 40, 2″ diameter well screen in preparation for well construction at RBMW01. The casing is on top of DTHH downhole hammer rods.

Photo 33
Drilling rig setting up for well construction at RBMW01.

Photo 34
Placement of K-packer on 2″ riser.

Photo 35
K-packer placement on riser.

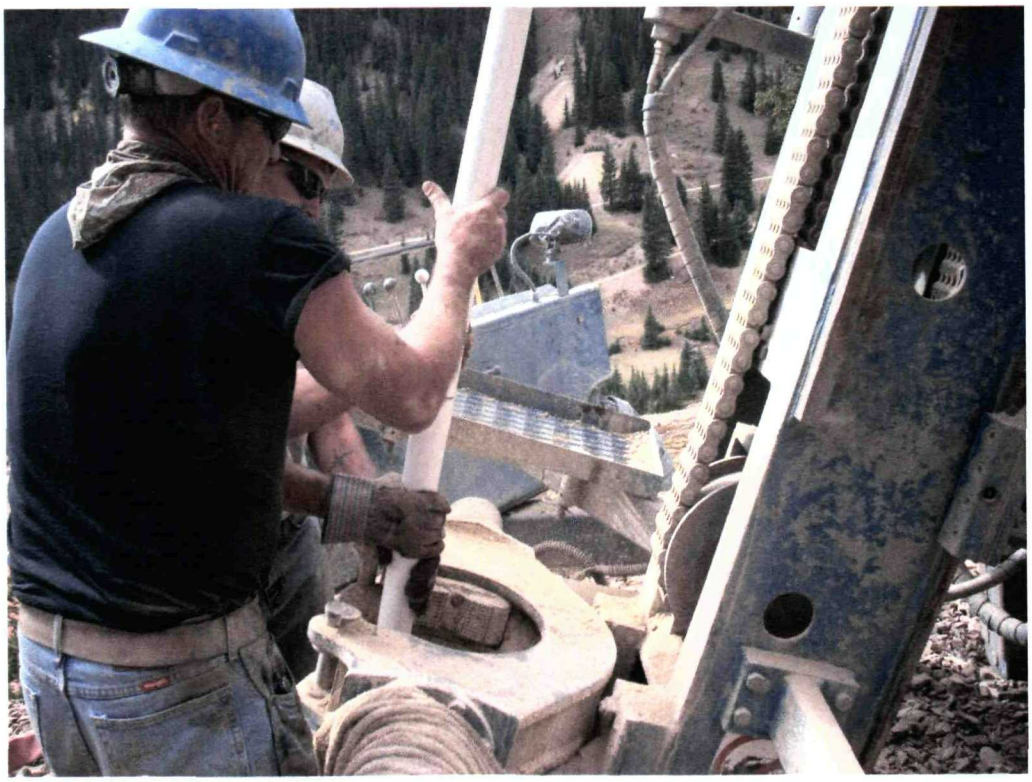

Photo 36
Emplacement of well screen into RBMW01.

Photo 37
Site photo of Red and Bonita, view northeast. This was taken while grout was setting in RBMW01. Hose in center of picture is for a water and grout pump at the drill pad.

Photo 38
ODEX surface casing and downhole hammer assembly prior to advancement of the borehole at RBLN02E50.

Photo 39
Beginning of RBLN02E50 borehole, note RBMW01 in foreground of picture.

Photo 40
ODEX rod emplacement during advancement of RBLN02E50.

Photo 41
Downhole hammer rods (small diameter, left) and 6″ ODEX surface casing rods (large diameter, right).

Photo 42
Discharge at the Red and Bonita adit flow clouded after adit penetration on borehole RBLN2E50. This effect is similar to the RBLN1E76 borehole.

Photo 43
Discharge approximately 20 minutes after borehole penetration at RBLN02E50. Note that discharge cleared up; however, suspended sediment persists in the drilling pond.

Photo 44
Demobilization of the rig along the north access road.

Photo 45
Restoration of ephemeral drainage on the north access road. A rolling dip was emplaced to facilitate overland flow across the road.

Photo 46
Gate installation site, at the north end of the reliance property. View south.

Photo 47
Gate installation materials.

Photo 48
Installation of gate posts on north access road 10/21/10.

Photo 49
Installation of pressure transducers at RBMW01 on 10/21/10.

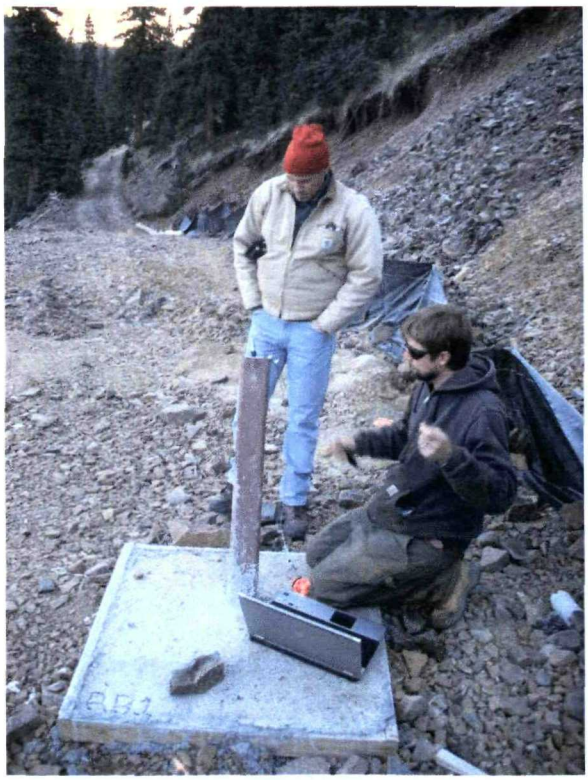

Photo 50
Initial programming of pressure transducer at RBMW01. Note drill pad and well apron. Silt fence emplaced along the upslope side of the drill pad.

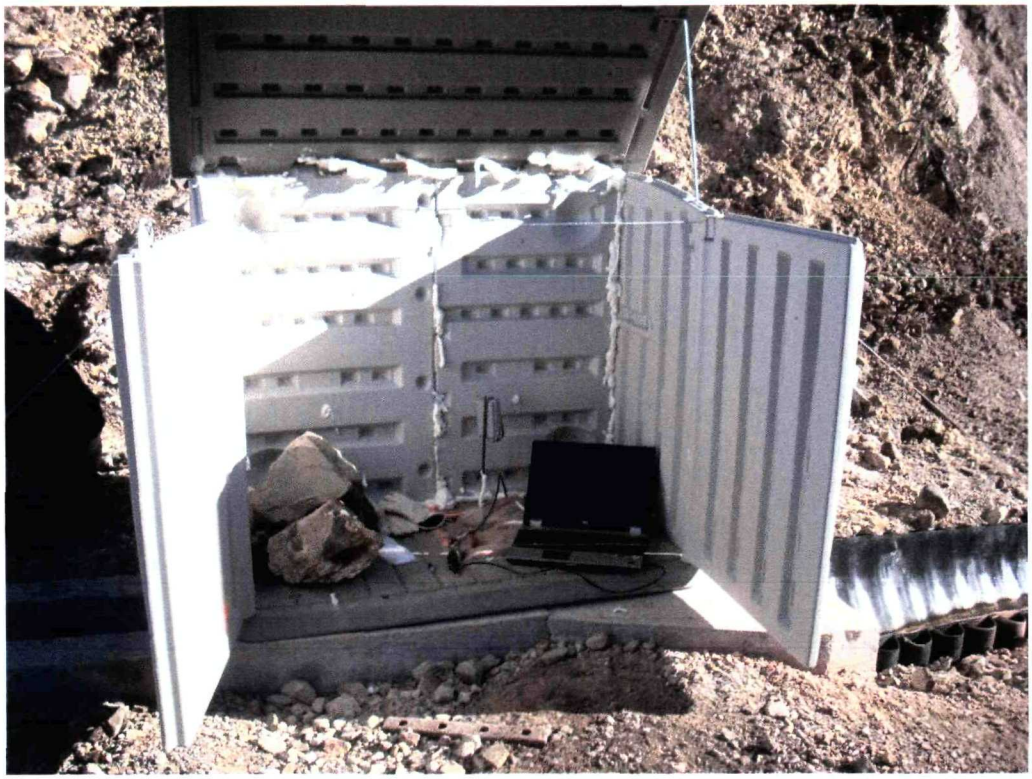

Photo 51
Snow shelter and programming of transducer at the Upper Gold King #7 site.

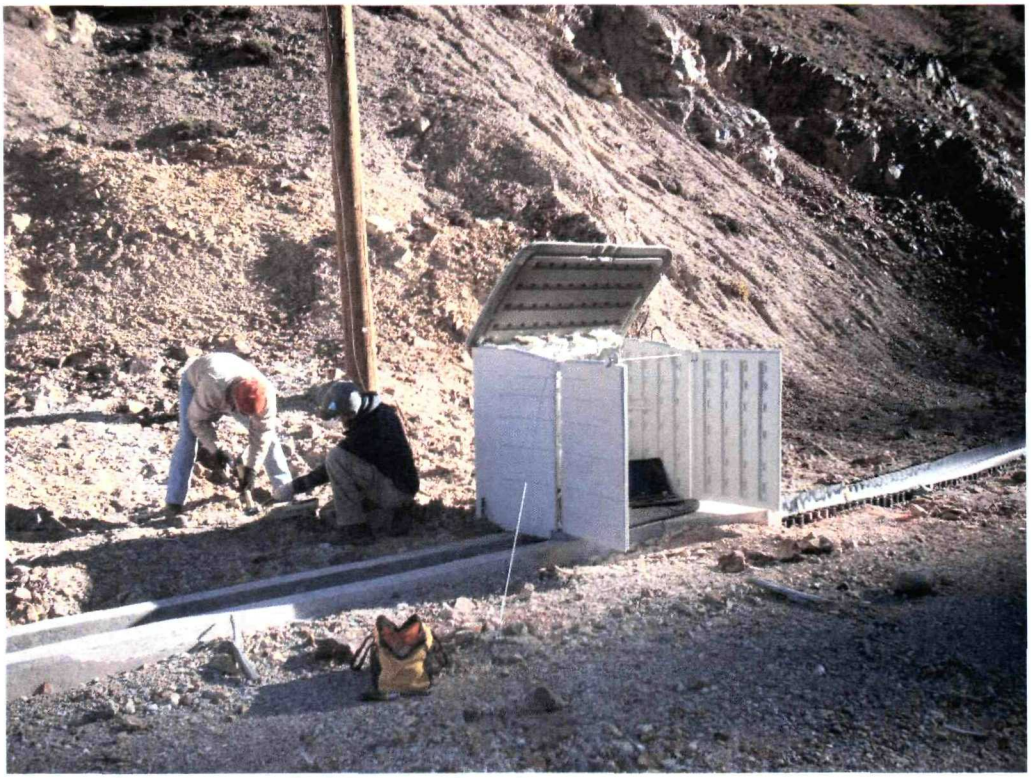

Photo 52
Emplacement of snow shelter on 10/21/10. Snow shelter was placed on top of the Upper Gold King #7.

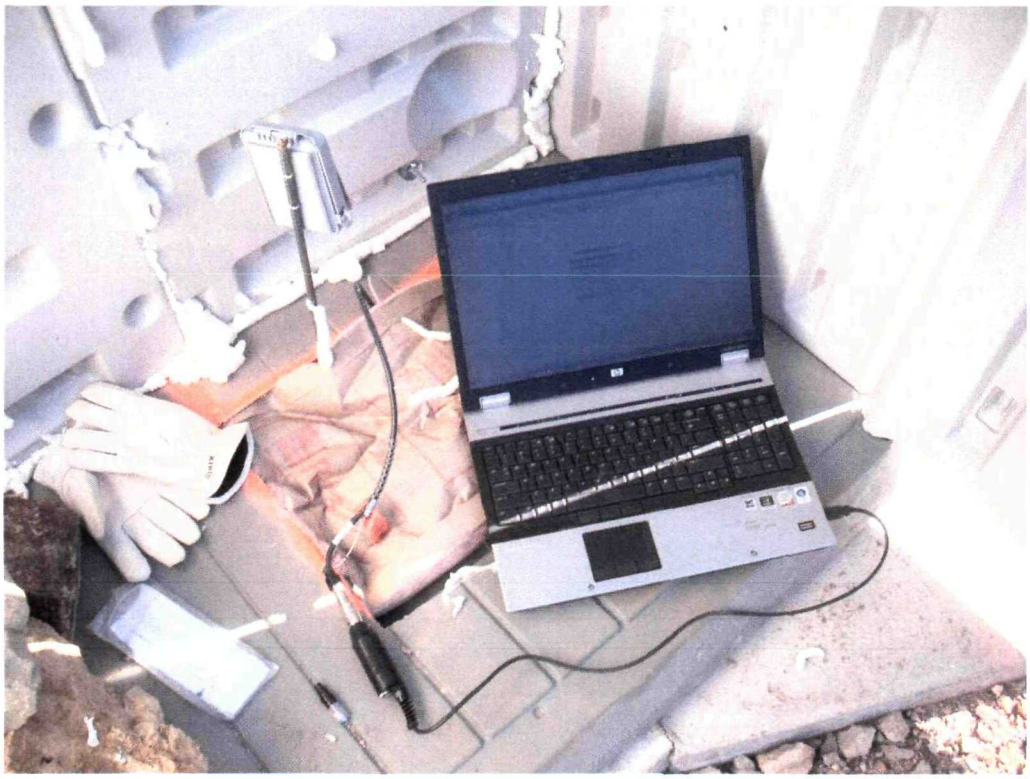

Photo 53
Programming of the pressure transducer at Upper Gold King #7. Note the transducer cabling, and the docking station.

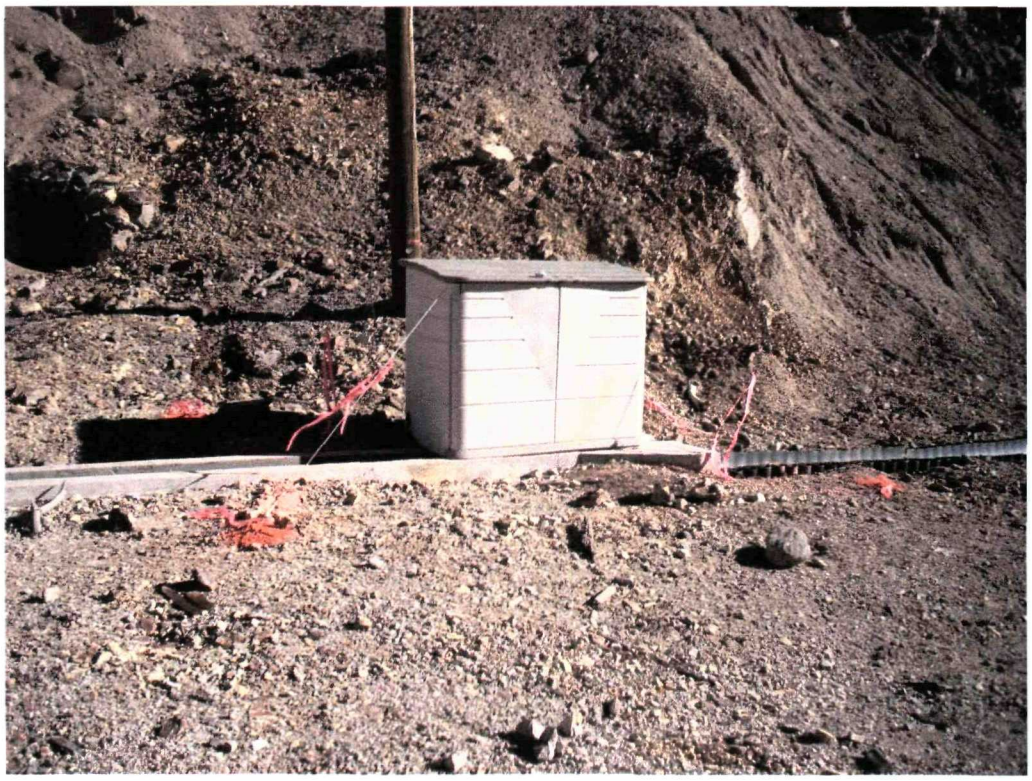

Photo 54
Completed snow shelter at Upper Gold King #7.

Photo 55
Final gate installation on 10/21/10.

Photo 56
View of north access road. View south.

Photo 57
Small rocks emplaced as a deterrent to vehicle travel on the north access road.
View south.

APPENDIX B

Analytical Data Package

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 280-4578-1

Job Description: 1005-04

For:
URS Corporation
1099 18th Street
Suite 710
Denver, CO 80202-1907

Attention: Ms. Kim Ohlson

Lori Parsons

Approved for release.
Lori A Parsons
Project Manager I
7/9/2010 11:24 AM

Lori A Parsons
Project Manager I
lori.parsons@testamericainc.com
07/09/2010

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

TestAmerica Laboratories, Inc.
TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002
Tel (303) 736-0100 Fax (303) 431-7171 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

Table of Contents

CASE NARRATIVE

Client: URS Corporation

Project: 1005-04

Report Number: 280-4578-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 06/17/2010; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.5 C.

TOTAL METALS - ICP

Samples RBSW01 (280-4578-1), MMSW03 (280-4578-2), MMSW02 (280-4578-3) and MMSW01 (280-4578-4) were analyzed for total metals in accordance with EPA SW-846 Method 6010B. The samples were prepared on 06/21/2010 and analyzed on 06/23/2010, 06/24/2010 and 06/25/2010.

Barium, Manganese and Sodium were detected in method blank MB 280-19910/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

The MS/MSD associated with analytical batch 20476 was performed on an unrelated sample and exhibited a percent recovery in the MSD below the control limits for lead. The acceptable LCS analyses data indicated the analytical system was within control; therefore corrective action was deemed unnecessary.

The MS/MSD associated with analytical batch 20652 was performed on an unrelated sample and exhibited percent recoveries below the control limits for thallium. The acceptable LCS analyses data indicated the analytical system was within control; therefore corrective action was deemed unnecessary.

No other difficulties were encountered during the metals analyses.

All other quality control parameters were within the acceptance limits.

DISSOLVED METALS - ICP

Samples RBSW01 (280-4578-1), MMSW03 (280-4578-2), MMSW02 (280-4578-3) and MMSW01 (280-4578-4) were analyzed for dissolved metals in accordance with EPA SW-846 Method 6010B. The samples were prepared on 06/22/2010 and analyzed on 06/24/2010, 06/28/2010 and 06/29/2010.

Samples RBSW01 (280-4578-1)[5X], MMSW03 (280-4578-2)[2X] and MMSW02 (280-4578-3)[2X] required dilution prior to analysis due to matrix interferences. The laboratory noted that the high manganese concentrations were interfering with the vanadium detections. The reporting limits have been adjusted accordingly.

Sodium was detected in method blank MB 280-20130/1-C at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

The continuing calibration verification (CCV) associated with analytical batch 20639 exhibited a percent difference recovered above the upper control limit for sodium. The sample associated with this CCV (method blank)was less than the RL for the affected analytes; therefore, the data have been reported.

No other difficulties were encountered during the dissolved metals analyses.

All other quality control parameters were within the acceptance limits.

TOTAL RECOVERABLE METALS - ICP/MS

Samples RBSW01 (280-4578-1), MMSW03 (280-4578-2), MMSW02 (280-4578-3) and MMSW01 (280-4578-4) were analyzed for total recoverable metals in accordance with EPA SW-846 Method 6020. The samples were prepared on 06/22/2010 and analyzed on 06/29/2010 and 07/01/2010.

Samples RBSW01 (280-4578-1)[5X], MMSW03 (280-4578-2)[10X], MMSW02 (280-4578-3)[10X] and MMSW01 (280-4578-4)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The MS/MSD associated with analytical batch 21101 was performed on sample MMSW03 (280-4578-2) and exhibited a percent recovery in the MS below the control limits for lead. The acceptable LCS analyses data indicated the analytical system was within control; therefore corrective action was deemed unnecessary.

The MS/MSD associated with analytical batch 21380 was performed on sample MMSW03 (280-4578-2) and exhibited percent recoveries above the control limits for manganese and zinc due to the sample amounts being greater than four times the spike amounts. The acceptable LCS analyses data indicated the analytical system was within control; therefore corrective action was deemed unnecessary.

No other difficulties were encountered during the metals analyses.

All other quality control parameters were within the acceptance limits.

DISSOLVED METALS - ICP/MS

Samples RBSW01 (280-4578-1), MMSW03 (280-4578-2), MMSW02 (280-4578-3) and MMSW01 (280-4578-4) were analyzed for dissolved metals in accordance with EPA SW-846 Method 6020. The samples were prepared on 06/22/2010 and analyzed on 06/26/2010.

Samples RBSW01 (280-4578-1)[2X], RBSW01 (280-4578-1)[20X], MMSW03 (280-4578-2)[2X], MMSW03 (280-4578-2)[20X], MMSW02 (280-4578-3)[2X], MMSW02 (280-4578-3)[20X], MMSW01 (280-4578-4)[2X] and MMSW01 (280-4578-4)[20X] required dilution prior to analysis, due to matrix effects. The reporting limits have been adjusted accordingly.

Thallium was detected in method blank MB 280-20130/1-B at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

No other difficulties were encountered during the dissolved metals analyses.

All other quality control parameters were within the acceptance limits.

TOTAL MERCURY

Samples RBSW01 (280-4578-1), MMSW03 (280-4578-2), MMSW02 (280-4578-3) and MMSW01 (280-4578-4) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 06/22/2010.

No difficulties were encountered during the mercury analyses.

All quality control parameters were within the acceptance limits.

DISSOLVED MERCURY

Samples RBSW01 (280-4578-1), MMSW03 (280-4578-2), MMSW02 (280-4578-3) and MMSW01 (280-4578-4) were analyzed for dissolved mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 06/22/2010.

Mercury was detected in method blank MB 280-20130/1-E at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

No other difficulties were encountered during the dissolved mercury analyses.

All other quality control parameters were within the acceptance limits.

EXECUTIVE SUMMARY - Detections

Client: URS Corporation

Job Number: 280-4578-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
280-4578-1	**RBSW01**					
Aluminum		3200		100	ug/L	6010B
Barium		35	B	10	ug/L	6010B
Beryllium		7.7		1.0	ug/L	6010B
Cadmium		35		5.0	ug/L	6010B
Calcium		390000		200	ug/L	6010B
Cobalt		110		10	ug/L	6010B
Copper		2.9	J	15	ug/L	6010B
Iron		100000		100	ug/L	6010B
Lead		92		9.0	ug/L	6010B
Magnesium		26000		200	ug/L	6010B
Manganese		30000	B	10	ug/L	6010B
Nickel		56		40	ug/L	6010B
Potassium		2100	J	3000	ug/L	6010B
Silver		4.1	J	10	ug/L	6010B
Zinc		15000		20	ug/L	6010B
Sodium		11000	B	1000	ug/L	6010B
Dissolved						
Aluminum		3100		100	ug/L	6010B
Barium		13		10	ug/L	6010B
Beryllium		6.1		1.0	ug/L	6010B
Cadmium		33		5.0	ug/L	6010B
Calcium		400000		200	ug/L	6010B
Cobalt		100		10	ug/L	6010B
Copper		1.5	J	15	ug/L	6010B
Iron		100000		500	ug/L	6010B
Lead		83		9.0	ug/L	6010B
Magnesium		24000		200	ug/L	6010B
Manganese		33000		50	ug/L	6010B
Nickel		52		40	ug/L	6010B
Potassium		1700	J	3000	ug/L	6010B
Selenium		6.6	J	15	ug/L	6010B
Silver		5.1	J	10	ug/L	6010B
Zinc		14000		20	ug/L	6010B
Sodium		9800		1000	ug/L	6010B
Arsenic		3.3	J	10	ug/L	6020
Barium		14		2.0	ug/L	6020
Beryllium		7.5		2.0	ug/L	6020
Cadmium		32		2.0	ug/L	6020
Cobalt		110		2.0	ug/L	6020
Copper		1.1	J	4.0	ug/L	6020
Lead		79		2.0	ug/L	6020
Manganese		32000		20	ug/L	6020
Nickel		56		4.0	ug/L	6020
Selenium		1.8	J	10	ug/L	6020
Thallium		0.16	J B	2.0	ug/L	6020
Vanadium		0.28	J	10	ug/L	6020
Zinc		15000		200	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: URS Corporation

Job Number: 280-4578-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
Mercury		0.027	J B	0.20	ug/L	7470A
Total Recoverable						
Antimony		1.0	J	10	ug/L	6020
Arsenic		3.5	J	25	ug/L	6020
Barium		15		5.0	ug/L	6020
Beryllium		9.1		5.0	ug/L	6020
Cadmium		35		5.0	ug/L	6020
Cobalt		110		5.0	ug/L	6020
Lead		90		5.0	ug/L	6020
Manganese		33000		5.0	ug/L	6020
Nickel		60		10	ug/L	6020
Silver		0.12	J	25	ug/L	6020
Thallium		0.30	J	5.0	ug/L	6020
Zinc		15000		50	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: URS Corporation

Job Number: 280-4578-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
280-4578-2	**MMSW03**					
Aluminum		2100		100	ug/L	6010B
Barium		26	B	10	ug/L	6010B
Beryllium		3.2		1.0	ug/L	6010B
Cadmium		34		5.0	ug/L	6010B
Calcium		130000		200	ug/L	6010B
Cobalt		18		10	ug/L	6010B
Copper		29		15	ug/L	6010B
Iron		24000		100	ug/L	6010B
Lead		150		9.0	ug/L	6010B
Magnesium		8700		200	ug/L	6010B
Manganese		19000	B	10	ug/L	6010B
Nickel		11	J	40	ug/L	6010B
Potassium		1900	J	3000	ug/L	6010B
Silver		2.7	J	10	ug/L	6010B
Zinc		19000		20	ug/L	6010B
Sodium		6400	B	1000	ug/L	6010B
Vanadium		1.4	J	10	ug/L	6010B
Mercury		0.052	J	0.20	ug/L	7470A
Dissolved						
Aluminum		2000		100	ug/L	6010B
Barium		8.0	J	10	ug/L	6010B
Beryllium		2.3		1.0	ug/L	6010B
Cadmium		33		5.0	ug/L	6010B
Calcium		140000		200	ug/L	6010B
Cobalt		18		10	ug/L	6010B
Copper		26		15	ug/L	6010B
Iron		15000		100	ug/L	6010B
Lead		130		9.0	ug/L	6010B
Magnesium		8300		200	ug/L	6010B
Manganese		19000		10	ug/L	6010B
Nickel		9.4	J	40	ug/L	6010B
Potassium		1600	J	3000	ug/L	6010B
Silver		3.4	J	10	ug/L	6010B
Zinc		19000		20	ug/L	6010B
Sodium		4800	B	1000	ug/L	6010B
Vanadium		8.1	J	20	ug/L	6010B
Arsenic		0.94	J	10	ug/L	6020
Barium		8.7		2.0	ug/L	6020
Beryllium		2.9		2.0	ug/L	6020
Cadmium		33		2.0	ug/L	6020
Cobalt		19		2.0	ug/L	6020
Copper		26		4.0	ug/L	6020
Lead		130		2.0	ug/L	6020
Manganese		19000		20	ug/L	6020
Nickel		12		4.0	ug/L	6020
Selenium		1.6	J	10	ug/L	6020
Thallium		0.15	J B	2.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: URS Corporation

Job Number: 280-4578-1

Lab Sample ID / Analyte	Client Sample ID / Result / Qualifier		Reporting Limit	Units	Method
Zinc	19000		200	ug/L	6020
Mercury	0.045	J B	0.20	ug/L	7470A
Total Recoverable					
Antimony	0.17	J	2.0	ug/L	6020
Arsenic	2.8	J	5.0	ug/L	6020
Barium	8.9		1.0	ug/L	6020
Beryllium	3.2		1.0	ug/L	6020
Cadmium	34		1.0	ug/L	6020
Cobalt	18		1.0	ug/L	6020
Copper	26		2.0	ug/L	6020
Lead	140		1.0	ug/L	6020
Manganese	20000		10	ug/L	6020
Nickel	11		2.0	ug/L	6020
Silver	0.036	J	5.0	ug/L	6020
Thallium	0.15	J	1.0	ug/L	6020
Vanadium	0.15	J	5.0	ug/L	6020
Zinc	20000		100	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: URS Corporation

Job Number: 280-4578-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
280-4578-3	**MMSW02**					
Aluminum		2200		100	ug/L	6010B
Barium		13	B	10	ug/L	6010B
Beryllium		3.0		1.0	ug/L	6010B
Cadmium		34		5.0	ug/L	6010B
Calcium		130000		200	ug/L	6010B
Cobalt		18		10	ug/L	6010B
Copper		47		15	ug/L	6010B
Iron		11000		100	ug/L	6010B
Lead		160		9.0	ug/L	6010B
Magnesium		8600		200	ug/L	6010B
Manganese		18000	B	10	ug/L	6010B
Nickel		10	J	40	ug/L	6010B
Potassium		1800	J	3000	ug/L	6010B
Silver		2.7	J	10	ug/L	6010B
Zinc		19000		20	ug/L	6010B
Sodium		5100	B	1000	ug/L	6010B
Vanadium		1.3	J	10	ug/L	6010B
Mercury		0.027	J	0.20	ug/L	7470A
Dissolved						
Aluminum		2200		100	ug/L	6010B
Barium		8.2	J	10	ug/L	6010B
Beryllium		2.3		1.0	ug/L	6010B
Cadmium		34		5.0	ug/L	6010B
Calcium		140000		200	ug/L	6010B
Cobalt		17		10	ug/L	6010B
Copper		43		15	ug/L	6010B
Iron		8800		100	ug/L	6010B
Lead		140		9.0	ug/L	6010B
Magnesium		8200		200	ug/L	6010B
Manganese		18000		10	ug/L	6010B
Nickel		9.4	J	40	ug/L	6010B
Potassium		1400	J	3000	ug/L	6010B
Silver		3.2	J	10	ug/L	6010B
Zinc		19000		20	ug/L	6010B
Sodium		4600	B	1000	ug/L	6010B
Vanadium		2.8	J	20	ug/L	6010B
Barium		8.7		2.0	ug/L	6020
Beryllium		3.1		2.0	ug/L	6020
Cadmium		33		2.0	ug/L	6020
Cobalt		18		2.0	ug/L	6020
Copper		41		4.0	ug/L	6020
Lead		140		2.0	ug/L	6020
Manganese		20000		20	ug/L	6020
Nickel		11		4.0	ug/L	6020
Thallium		0.14	J B	2.0	ug/L	6020
Zinc		20000		200	ug/L	6020
Mercury		0.038	J B	0.20	ug/L	7470A

EXECUTIVE SUMMARY - Detections

Client: URS Corporation

Job Number: 280-4578-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
Total Recoverable						
Antimony		0.35	J	2.0	ug/L	6020
Arsenic		1.9	J	5.0	ug/L	6020
Barium		9.2		1.0	ug/L	6020
Beryllium		3.1		1.0	ug/L	6020
Cadmium		34		1.0	ug/L	6020
Cobalt		18		1.0	ug/L	6020
Copper		42		2.0	ug/L	6020
Lead		140		1.0	ug/L	6020
Manganese		18000		10	ug/L	6020
Nickel		11		2.0	ug/L	6020
Silver		0.093	J	5.0	ug/L	6020
Thallium		0.15	J	1.0	ug/L	6020
Zinc		19000		100	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: URS Corporation

Job Number: 280-4578-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
280-4578-4	**MMSW01**					
Aluminum		4200		100	ug/L	6010B
Barium		11	B	10	ug/L	6010B
Beryllium		1.6		1.0	ug/L	6010B
Cadmium		35		5.0	ug/L	6010B
Calcium		55000		200	ug/L	6010B
Chromium		0.86	J	10	ug/L	6010B
Cobalt		9.8	J	10	ug/L	6010B
Copper		600		15	ug/L	6010B
Iron		4700		100	ug/L	6010B
Lead		54		9.0	ug/L	6010B
Magnesium		5200		200	ug/L	6010B
Manganese		7700	B	10	ug/L	6010B
Nickel		9.1	J	40	ug/L	6010B
Potassium		810	J	3000	ug/L	6010B
Silver		1.3	J	10	ug/L	6010B
Zinc		11000		20	ug/L	6010B
Sodium		2800	B	1000	ug/L	6010B
Vanadium		1.3	J	10	ug/L	6010B
Dissolved						
Aluminum		4400		100	ug/L	6010B
Barium		7.2	J	10	ug/L	6010B
Beryllium		0.86	J	1.0	ug/L	6010B
Cadmium		35		5.0	ug/L	6010B
Calcium		58000		200	ug/L	6010B
Cobalt		9.8	J	10	ug/L	6010B
Copper		590		15	ug/L	6010B
Iron		4900		100	ug/L	6010B
Lead		51		9.0	ug/L	6010B
Magnesium		5200		200	ug/L	6010B
Manganese		7600		10	ug/L	6010B
Nickel		8.7	J	40	ug/L	6010B
Potassium		660	J	3000	ug/L	6010B
Silver		1.8	J	10	ug/L	6010B
Zinc		11000		20	ug/L	6010B
Sodium		2500	B	1000	ug/L	6010B
Barium		8.2		2.0	ug/L	6020
Beryllium		1.9	J	2.0	ug/L	6020
Cadmium		35		2.0	ug/L	6020
Cobalt		10		2.0	ug/L	6020
Copper		580		4.0	ug/L	6020
Lead		51		2.0	ug/L	6020
Manganese		7800		20	ug/L	6020
Nickel		10		4.0	ug/L	6020
Selenium		2.1	J	10	ug/L	6020
Silver		0.13	J	10	ug/L	6020
Thallium		0.11	J B	2.0	ug/L	6020
Zinc		12000		200	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: URS Corporation

Job Number: 280-4578-1

Lab Sample ID / Client Sample ID / Analyte	Result / Qualifier		Reporting Limit	Units	Method
Mercury	0.042	J B	0.20	ug/L	7470A
Total Recoverable					
Antimony	0.12	J	2.0	ug/L	6020
Arsenic	0.34	J	5.0	ug/L	6020
Barium	7.5		1.0	ug/L	6020
Beryllium	1.6		1.0	ug/L	6020
Cadmium	35		1.0	ug/L	6020
Chromium	1.5	J	2.0	ug/L	6020
Cobalt	9.9		1.0	ug/L	6020
Copper	550		2.0	ug/L	6020
Lead	50		1.0	ug/L	6020
Manganese	7600		10	ug/L	6020
Nickel	9.8		2.0	ug/L	6020
Silver	0.26	J	5.0	ug/L	6020
Thallium	0.072	J	1.0	ug/L	6020
Zinc	12000		100	ug/L	6020

METHOD SUMMARY

Client: URS Corporation

Job Number: 280-4578-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Metals (ICP)	TAL DEN	SW846 6010B	
Sample Filtration	TAL DEN		FILTRATION
Preparation, Total Metals	TAL DEN		SW846 3010A
Preparation, Total Recoverable or Dissolved Metals	TAL DEN		SW846 3005A
Metals (ICP/MS)	TAL DEN	SW846 6020	
Sample Filtration	TAL DEN		FILTRATION
Preparation, Total Recoverable or Dissolved Metals	TAL DEN		SW846 3005A
Mercury (CVAA)	TAL DEN	SW846 7470A	
Sample Filtration	TAL DEN		FILTRATION
Preparation, Mercury	TAL DEN		SW846 7470A

Lab References:

TAL DEN = TestAmerica Denver

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: URS Corporation

Job Number: 280-4578-1

Method	Analyst	Analyst ID
SW846 6010B	Harre, John K	JKH
SW846 6010B	Trudell, Lynn-Anne	LT
SW846 6010B	Wells, David	DW
SW846 6020	Lill, Thomas E	TEL
SW846 7470A	Stoltz, Katie	KS

SAMPLE SUMMARY

Client: URS Corporation

Job Number: 280-4578-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-4578-1	RBSW01	Water	06/15/2010 1430	06/17/2010 1505
280-4578-2	MMSW03	Water	06/15/2010 1145	06/17/2010 1505
280-4578-3	MMSW02	Water	06/15/2010 1130	06/17/2010 1505
280-4578-4	MMSW01	Water	06/15/2010 1115	06/17/2010 1505

SAMPLE RESULTS

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: RBSW01

Lab Sample ID: 280-4578-1
Client Matrix: Water

Date Sampled: 06/15/2010 1430
Date Received: 06/17/2010 1505

6010B Metals (ICP)

Method:	6010B	Analysis Batch: 280-20476	Instrument ID: MT_025
Preparation:	3010A	Prep Batch: 280-19910	Lab File ID: 25b062310.txt
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	06/23/2010 1609		Final Weight/Volume: 50 mL
Date Prepared:	06/21/2010 1500		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aluminum	3200		18	100
Antimony	ND		3.1	10
Arsenic	ND		4.4	15
Barium	35	B	0.58	10
Cadmium	35		0.45	5.0
Calcium	390000		34	200
Chromium	ND		0.66	10
Cobalt	110		0.12	10
Copper	2.9	J	0.14	15
Lead	92		2.6	9.0
Magnesium	26000		11	200
Manganese	30000	B	0.25	10
Nickel	56		1.3	40
Potassium	2100	J	240	3000
Selenium	ND		4.9	15
Silver	4.1	J	0.93	10
Zinc	15000		4.5	20
Sodium	11000	B	92	1000
Vanadium	ND		1.1	10

Method:	6010B	Analysis Batch: 280-20652	Instrument ID: MT_025
Preparation:	3010A	Prep Batch: 280-19910	Lab File ID: 25A3062410.txt
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	06/24/2010 2020		Final Weight/Volume: 50 mL
Date Prepared:	06/21/2010 1500		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Thallium	ND		4.9	15

Method:	6010B	Analysis Batch: 280-20949	Instrument ID: MT_025
Preparation:	3010A	Prep Batch: 280-19910	Lab File ID: 25A3062510.txt
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	06/25/2010 2007		Final Weight/Volume: 50 mL
Date Prepared:	06/21/2010 1500		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Beryllium	7.7		0.47	1.0
Iron	100000		22	100

6010B Metals (ICP)-Dissolved

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: RBSW01

Lab Sample ID: 280-4578-1
Client Matrix: Water

Date Sampled: 06/15/2010 1430
Date Received: 06/17/2010 1505

6010B Metals (ICP)-Dissolved

Method: 6010B
Preparation: 3005A
Dilution: 1.0
Date Analyzed: 06/24/2010 2242
Date Prepared: 06/22/2010 0830

Analysis Batch: 280-20639
Prep Batch: 280-20144

Instrument ID: MT_026
Lab File ID: 26d062410.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aluminum	3100		18	100
Antimony	ND		3.1	10
Arsenic	ND		4.4	15
Barium	13		0.58	10
Beryllium	6.1		0.47	1.0
Cadmium	33		0.45	5.0
Calcium	400000		34	200
Chromium	ND		0.66	10
Cobalt	100		0.12	10
Copper	1.5	J	0.14	15
Lead	83		2.6	9.0
Magnesium	24000		11	200
Nickel	52		1.3	40
Potassium	1700	J	240	3000
Selenium	6.6	J	4.9	15
Silver	5.1	J	0.93	10
Thallium	ND		4.9	15
Zinc	14000		4.5	20
Sodium	9800		92	1000

Method: 6010B
Preparation: 3005A
Dilution: 5.0
Date Analyzed: 06/28/2010 1653
Date Prepared: 06/22/2010 0830

Analysis Batch: 280-21026
Prep Batch: 280-20144

Instrument ID: MT_026
Lab File ID: 26a062810.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Iron	100000		110	500
Manganese	33000		1.3	50
Vanadium	ND		5.6	50

6020 Metals (ICP/MS)-Total Recoverable

Method: 6020
Preparation: 3005A
Dilution: 5.0
Date Analyzed: 06/29/2010 0510
Date Prepared: 06/22/2010 1330

Analysis Batch: 280-21101
Prep Batch: 280-20103

Instrument ID: MT_024
Lab File ID: 170SMPL.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	1.0	J	0.35	10
Arsenic	3.5	J	1.0	25
Barium	15		1.4	5.0
Beryllium	9.1		0.40	5.0

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: RBSW01

Lab Sample ID: 280-4578-1
Client Matrix: Water

Date Sampled: 06/15/2010 1430
Date Received: 06/17/2010 1505

6020 Metals (ICP/MS)-Total Recoverable

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	35		0.20	5.0
Chromium	ND		2.5	10
Cobalt	110		0.050	5.0
Copper	ND		2.8	10
Lead	90		0.90	5.0
Manganese	33000		1.6	5.0
Nickel	60		1.5	10
Selenium	ND		3.5	25
Silver	0.12	J	0.075	25
Thallium	0.30	J	0.10	5.0
Vanadium	ND		0.70	25
Zinc	15000		10	50

6020 Metals (ICP/MS)-Dissolved

Method:	6020	Analysis Batch: 280-20904		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20140		Lab File ID:	096SMPL.D
Dilution:	2.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/26/2010 0018			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	ND		0.14	4.0
Arsenic	3.3	J	0.42	10
Barium	14		0.58	2.0
Beryllium	7.5		0.16	2.0
Cadmium	32		0.080	2.0
Chromium	ND		1.0	4.0
Cobalt	110		0.020	2.0
Copper	1.1	J	1.1	4.0
Lead	79		0.36	2.0
Nickel	56		0.60	4.0
Selenium	1.8	J	1.4	10
Silver	ND		0.030	10
Thallium	0.16	J B	0.040	2.0
Vanadium	0.28	J	0.28	10

Method:	6020	Analysis Batch: 280-20904		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20140		Lab File ID:	095SMPL.D
Dilution:	20			Initial Weight/Volume:	50 mL
Date Analyzed:	06/26/2010 0016	Run Type: DL		Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	32000		6.2	20
Zinc	15000		40	200

7470A Mercury (CVAA)

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: RBSW01

Lab Sample ID: 280-4578-1
Client Matrix: Water

Date Sampled: 06/15/2010 1430
Date Received: 06/17/2010 1505

7470A Mercury (CVAA)

Method:	7470A	Analysis Batch: 280-20496		Instrument ID:	MT_033
Preparation:	7470A	Prep Batch: 280-20069		Lab File ID:	100622AA.txt
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	06/22/2010 1659			Final Weight/Volume:	10 mL
Date Prepared:	06/22/2010 0950				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	ND		0.027	0.20

7470A Mercury (CVAA)-Dissolved

Method:	7470A	Analysis Batch: 280-20496		Instrument ID:	MT_033
Preparation:	7470A	Prep Batch: 280-20183		Lab File ID:	100622AA.txt
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	06/22/2010 1423			Final Weight/Volume:	10 mL
Date Prepared:	06/22/2010 0950				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.027	J B	0.027	0.20

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: MMSW03

Lab Sample ID: 280-4578-2
Client Matrix: Water

Date Sampled: 06/15/2010 1145
Date Received: 06/17/2010 1505

6010B Metals (ICP)

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 06/23/2010 1611
Date Prepared: 06/21/2010 1500

Analysis Batch: 280-20476
Prep Batch: 280-19910

Instrument ID: MT_025
Lab File ID: 25b062310.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aluminum	2100		18	100
Antimony	ND		3.1	10
Arsenic	ND		4.4	15
Barium	26	B	0.58	10
Cadmium	34		0.45	5.0
Calcium	130000		34	200
Chromium	ND		0.66	10
Cobalt	18		0.12	10
Copper	29		0.14	15
Lead	150		2.6	9.0
Magnesium	8700		11	200
Manganese	19000	B	0.25	10
Nickel	11	J	1.3	40
Potassium	1900	J	240	3000
Selenium	ND		4.9	15
Silver	2.7	J	0.93	10
Zinc	19000		4.5	20
Vanadium	1.4	J	1.1	10

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 06/24/2010 2023
Date Prepared: 06/21/2010 1500

Analysis Batch: 280-20652
Prep Batch: 280-19910

Instrument ID: MT_025
Lab File ID: 25A3062410.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Thallium	ND		4.9	15
Sodium	6400	B	92	1000

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 06/25/2010 2010
Date Prepared: 06/21/2010 1500

Analysis Batch: 280-20949
Prep Batch: 280-19910

Instrument ID: MT_025
Lab File ID: 25A3062510.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Beryllium	3.2		0.47	1.0
Iron	24000		22	100

6010B Metals (ICP)-Dissolved

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: MMSW03

Lab Sample ID: 280-4578-2
Client Matrix: Water

Date Sampled: 06/15/2010 1145
Date Received: 06/17/2010 1505

6010B Metals (ICP)-Dissolved

Method: 6010B
Preparation: 3005A
Dilution: 1.0
Date Analyzed: 06/24/2010 2244
Date Prepared: 06/22/2010 0830

Analysis Batch: 280-20639
Prep Batch: 280-20144

Instrument ID: MT_026
Lab File ID: 26d062410.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aluminum	2000		18	100
Antimony	ND		3.1	10
Arsenic	ND		4.4	15
Barium	8.0	J	0.58	10
Beryllium	2.3		0.47	1.0
Cadmium	33		0.45	5.0
Calcium	140000		34	200
Chromium	ND		0.66	10
Cobalt	18		0.12	10
Copper	26		0.14	15
Lead	130		2.6	9.0
Magnesium	8300		11	200
Manganese	19000		0.25	10
Nickel	9.4	J	1.3	40
Potassium	1600	J	240	3000
Selenium	ND		4.9	15
Silver	3.4	J	0.93	10
Thallium	ND		4.9	15
Zinc	19000		4.5	20
Sodium	4800	B	92	1000

Method: 6010B
Preparation: 3005A
Dilution: 1.0
Date Analyzed: 06/28/2010 1655
Date Prepared: 06/22/2010 0830

Analysis Batch: 280-21026
Prep Batch: 280-20144

Instrument ID: MT_026
Lab File ID: 26a062810.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Iron	15000		22	100

Method: 6010B
Preparation: 3005A
Dilution: 2.0
Date Analyzed: 06/29/2010 1525
Date Prepared: 06/22/2010 0830

Analysis Batch: 280-21165
Prep Batch: 280-20144

Instrument ID: MT_026
Lab File ID: 26b062910.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vanadium	8.1	J	2.2	20

6020 Metals (ICP/MS)-Total Recoverable

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: MMSW03

Lab Sample ID: 280-4578-2
Client Matrix: Water

Date Sampled: 06/15/2010 1145
Date Received: 06/17/2010 1505

6020 Metals (ICP/MS)-Total Recoverable

Method:	6020	Analysis Batch: 280-21101		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20103		Lab File ID:	171AREF.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/29/2010 0513			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 1330				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.17	J	0.070	2.0
Arsenic	2.8	J	0.21	5.0
Barium	8.9		0.29	1.0
Beryllium	3.2		0.080	1.0
Cadmium	34		0.040	1.0
Chromium	ND		0.50	2.0
Cobalt	18		0.010	1.0
Copper	26		0.56	2.0
Lead	140		0.18	1.0
Nickel	11		0.30	2.0
Selenium	ND		0.70	5.0
Silver	0.036	J	0.015	5.0
Thallium	0.15	J	0.020	1.0
Vanadium	0.15	J	0.14	5.0

Method:	6020	Analysis Batch: 280-21380		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20103		Lab File ID:	221AREF.D
Dilution:	10			Initial Weight/Volume:	50 mL
Date Analyzed:	07/01/2010 0431	Run Type: DL		Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 1330				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	20000		3.1	10
Zinc	20000		20	100

6020 Metals (ICP/MS)-Dissolved

Method:	6020	Analysis Batch: 280-20904		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20140		Lab File ID:	098SMPL.D
Dilution:	2.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/26/2010 0025			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	ND		0.14	4.0
Arsenic	0.94	J	0.42	10
Barium	8.7		0.58	2.0
Beryllium	2.9		0.16	2.0
Cadmium	33		0.080	2.0
Chromium	ND		1.0	4.0
Cobalt	19		0.020	2.0
Copper	26		1.1	4.0
Lead	130		0.36	2.0
Nickel	12		0.60	4.0

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: **MMSW03**

Lab Sample ID: 280-4578-2
Client Matrix: Water

Date Sampled: 06/15/2010 1145
Date Received: 06/17/2010 1505

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	1.6	J	1.4	10
Silver	ND		0.030	10
Thallium	0.15	J B	0.040	2.0
Vanadium	ND		0.28	10

Method:	6020	Analysis Batch: 280-20904		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20140		Lab File ID:	097SMPL.D
Dilution:	20			Initial Weight/Volume:	50 mL
Date Analyzed:	06/26/2010 0021	Run Type: DL		Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	19000		6.2	20
Zinc	19000		40	200

7470A Mercury (CVAA)

Method:	7470A	Analysis Batch: 280-20496		Instrument ID:	MT_033
Preparation:	7470A	Prep Batch: 280-20069		Lab File ID:	100622AA.txt
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	06/22/2010 1706			Final Weight/Volume:	10 mL
Date Prepared:	06/22/2010 0950				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.052	J	0.027	0.20

7470A Mercury (CVAA)-Dissolved

Method:	7470A	Analysis Batch: 280-20496		Instrument ID:	MT_033
Preparation:	7470A	Prep Batch: 280-20183		Lab File ID:	100622AA.txt
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	06/22/2010 1425			Final Weight/Volume:	10 mL
Date Prepared:	06/22/2010 0950				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.045	J B	0.027	0.20

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: MMSW02

Lab Sample ID: 280-4578-3
Client Matrix: Water

Date Sampled: 06/15/2010 1130
Date Received: 06/17/2010 1505

6010B Metals (ICP)

Method:	6010B	Analysis Batch: 280-20476		Instrument ID:	MT_025
Preparation:	3010A	Prep Batch: 280-19910		Lab File ID:	25b062310.txt
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/23/2010 1614			Final Weight/Volume:	50 mL
Date Prepared:	06/21/2010 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aluminum	2200		18	100
Antimony	ND		3.1	10
Arsenic	ND		4.4	15
Barium	13	B	0.58	10
Cadmium	34		0.45	5.0
Calcium	130000		34	200
Chromium	ND		0.66	10
Cobalt	18		0.12	10
Copper	47		0.14	15
Lead	160		2.6	9.0
Magnesium	8600		11	200
Manganese	18000	B	0.25	10
Nickel	10	J	1.3	40
Potassium	1800	J	240	3000
Selenium	ND		4.9	15
Silver	2.7	J	0.93	10
Zinc	19000		4.5	20
Vanadium	1.3	J	1.1	10

Method:	6010B	Analysis Batch: 280-20652		Instrument ID:	MT_025
Preparation:	3010A	Prep Batch: 280-19910		Lab File ID:	25A3062410.txt
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/24/2010 2025			Final Weight/Volume:	50 mL
Date Prepared:	06/21/2010 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Thallium	ND		4.9	15
Sodium	5100	B	92	1000

Method:	6010B	Analysis Batch: 280-20949		Instrument ID:	MT_025
Preparation:	3010A	Prep Batch: 280-19910		Lab File ID:	25A3062510.txt
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/25/2010 2013			Final Weight/Volume:	50 mL
Date Prepared:	06/21/2010 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Beryllium	3.0		0.47	1.0
Iron	11000		22	100

6010B Metals (ICP)-Dissolved

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: MMSW02

Lab Sample ID: 280-4578-3
Client Matrix: Water

Date Sampled: 06/15/2010 1130
Date Received: 06/17/2010 1505

6010B Metals (ICP)-Dissolved

Method:	6010B	Analysis Batch: 280-20639		Instrument ID:	MT_026
Preparation:	3005A	Prep Batch: 280-20144		Lab File ID:	26d062410.txt
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/24/2010 2247			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aluminum	2200		18	100
Antimony	ND		3.1	10
Arsenic	ND		4.4	15
Barium	8.2	J	0.58	10
Beryllium	2.3		0.47	1.0
Cadmium	34		0.45	5.0
Calcium	140000		34	200
Chromium	ND		0.66	10
Cobalt	17		0.12	10
Copper	43		0.14	15
Lead	140		2.6	9.0
Magnesium	8200		11	200
Manganese	18000		0.25	10
Nickel	9.4	J	1.3	40
Potassium	1400	J	240	3000
Selenium	ND		4.9	15
Silver	3.2	J	0.93	10
Thallium	ND		4.9	15
Zinc	19000		4.5	20
Sodium	4600	B	92	1000

Method:	6010B	Analysis Batch: 280-21026		Instrument ID:	MT_026
Preparation:	3005A	Prep Batch: 280-20144		Lab File ID:	26a062810.txt
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/28/2010 1658			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Iron	8800		22	100

Method:	6010B	Analysis Batch: 280-21165		Instrument ID:	MT_026
Preparation:	3005A	Prep Batch: 280-20144		Lab File ID:	26b062910.txt
Dilution:	2.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/29/2010 1527			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vanadium	2.8	J	2.2	20

6020 Metals (ICP/MS)-Total Recoverable

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: MMSW02

Lab Sample ID: 280-4578-3
Client Matrix: Water

Date Sampled: 06/15/2010 1130
Date Received: 06/17/2010 1505

6020 Metals (ICP/MS)-Total Recoverable

Method:	6020	Analysis Batch: 280-21101		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20103		Lab File ID:	176SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/29/2010 0527			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 1330				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.35	J	0.070	2.0
Arsenic	1.9	J	0.21	5.0
Barium	9.2		0.29	1.0
Beryllium	3.1		0.080	1.0
Cadmium	34		0.040	1.0
Chromium	ND		0.50	2.0
Cobalt	18		0.010	1.0
Copper	42		0.56	2.0
Lead	140		0.18	1.0
Nickel	11		0.30	2.0
Selenium	ND		0.70	5.0
Silver	0.093	J	0.015	5.0
Thallium	0.15	J	0.020	1.0
Vanadium	ND		0.14	5.0

Method:	6020	Analysis Batch: 280-21380		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20103		Lab File ID:	226SMPL.D
Dilution:	10			Initial Weight/Volume:	50 mL
Date Analyzed:	07/01/2010 0444	Run Type: DL		Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 1330				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	18000		3.1	10
Zinc	19000		20	100

6020 Metals (ICP/MS)-Dissolved

Method:	6020	Analysis Batch: 280-20904		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20140		Lab File ID:	100SMPL.D
Dilution:	2.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/26/2010 0030			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	ND		0.14	4.0
Arsenic	ND		0.42	10
Barium	8.7		0.58	2.0
Beryllium	3.1		0.16	2.0
Cadmium	33		0.080	2.0
Chromium	ND		1.0	4.0
Cobalt	18		0.020	2.0
Copper	41		1.1	4.0
Lead	140		0.36	2.0
Nickel	11		0.60	4.0

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: **MMSW02**

Lab Sample ID: 280-4578-3
Client Matrix: Water

Date Sampled: 06/15/2010 1130
Date Received: 06/17/2010 1505

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	ND		1.4	10
Silver	ND		0.030	10
Thallium	0.14	J B	0.040	2.0
Vanadium	ND		0.28	10

Method:	6020	Analysis Batch: 280-20904		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20140		Lab File ID:	099SMPL.D
Dilution:	20			Initial Weight/Volume:	50 mL
Date Analyzed:	06/26/2010 0027	Run Type: DL		Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	20000		6.2	20
Zinc	20000		40	200

7470A Mercury (CVAA)

Method:	7470A	Analysis Batch: 280-20496		Instrument ID:	MT_033
Preparation:	7470A	Prep Batch: 280-20069		Lab File ID:	100622AA.txt
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	06/22/2010 1713			Final Weight/Volume:	10 mL
Date Prepared:	06/22/2010 0950				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.027	J	0.027	0.20

7470A Mercury (CVAA)-Dissolved

Method:	7470A	Analysis Batch: 280-20496		Instrument ID:	MT_033
Preparation:	7470A	Prep Batch: 280-20183		Lab File ID:	100622AA.txt
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	06/22/2010 1432			Final Weight/Volume:	10 mL
Date Prepared:	06/22/2010 0950				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.038	J B	0.027	0.20

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: MMSW01

Lab Sample ID: 280-4578-4
Client Matrix: Water

Date Sampled: 06/15/2010 1115
Date Received: 06/17/2010 1505

6010B Metals (ICP)

Method:	6010B	Analysis Batch: 280-20476		Instrument ID:	MT_025
Preparation:	3010A	Prep Batch: 280-19910		Lab File ID:	25b062310.txt
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/23/2010 1616			Final Weight/Volume:	50 mL
Date Prepared:	06/21/2010 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aluminum	4200		18	100
Antimony	ND		3.1	10
Arsenic	ND		4.4	15
Barium	11	B	0.58	10
Cadmium	35		0.45	5.0
Calcium	55000		34	200
Chromium	0.86	J	0.66	10
Cobalt	9.8	J	0.12	10
Copper	600		0.14	15
Lead	54		2.6	9.0
Magnesium	5200		11	200
Manganese	7700	B	0.25	10
Nickel	9.1	J	1.3	40
Potassium	810	J	240	3000
Selenium	ND		4.9	15
Silver	1.3	J	0.93	10
Zinc	11000		4.5	20
Vanadium	1.3	J	1.1	10

Method:	6010B	Analysis Batch: 280-20652		Instrument ID:	MT_025
Preparation:	3010A	Prep Batch: 280-19910		Lab File ID:	25A3062410.txt
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/24/2010 2028			Final Weight/Volume:	50 mL
Date Prepared:	06/21/2010 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Thallium	ND		4.9	15
Sodium	2800	B	92	1000

Method:	6010B	Analysis Batch: 280-20949		Instrument ID:	MT_025
Preparation:	3010A	Prep Batch: 280-19910		Lab File ID:	25A3062510.txt
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/25/2010 2015			Final Weight/Volume:	50 mL
Date Prepared:	06/21/2010 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Beryllium	1.6		0.47	1.0
Iron	4700		22	100

6010B Metals (ICP)-Dissolved

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: MMSW01

Lab Sample ID: 280-4578-4
Client Matrix: Water

Date Sampled: 06/15/2010 1115
Date Received: 06/17/2010 1505

6010B Metals (ICP)-Dissolved

Method:	6010B	Analysis Batch: 280-20639		Instrument ID:	MT_026
Preparation:	3005A	Prep Batch: 280-20144		Lab File ID:	26d062410.txt
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/24/2010 2249			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aluminum	4400		18	100
Antimony	ND		3.1	10
Arsenic	ND		4.4	15
Barium	7.2	J	0.58	10
Beryllium	0.86	J	0.47	1.0
Cadmium	35		0.45	5.0
Calcium	58000		34	200
Chromium	ND		0.66	10
Cobalt	9.8	J	0.12	10
Copper	590		0.14	15
Lead	51		2.6	9.0
Magnesium	5200		11	200
Manganese	7600		0.25	10
Nickel	8.7	J	1.3	40
Potassium	660	J	240	3000
Selenium	ND		4.9	15
Silver	1.8	J	0.93	10
Thallium	ND		4.9	15
Zinc	11000		4.5	20
Sodium	2500	B	92	1000
Vanadium	ND		1.1	10

Method:	6010B	Analysis Batch: 280-21026		Instrument ID:	MT_026
Preparation:	3005A	Prep Batch: 280-20144		Lab File ID:	26a062810.txt
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/28/2010 1700			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Iron	4900		22	100

6020 Metals (ICP/MS)-Total Recoverable

Method:	6020	Analysis Batch: 280-21101		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20103		Lab File ID:	177SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/29/2010 0529			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 1330				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.12	J	0.070	2.0
Arsenic	0.34	J	0.21	5.0
Barium	7.5		0.29	1.0
Beryllium	1.6		0.080	1.0

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: MMSW01

Lab Sample ID: 280-4578-4
Client Matrix: Water

Date Sampled: 06/15/2010 1115
Date Received: 06/17/2010 1505

6020 Metals (ICP/MS)-Total Recoverable

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	35		0.040	1.0
Chromium	1.5	J	0.50	2.0
Cobalt	9.9		0.010	1.0
Copper	550		0.56	2.0
Lead	50		0.18	1.0
Nickel	9.8		0.30	2.0
Selenium	ND		0.70	5.0
Silver	0.26	J	0.015	5.0
Thallium	0.072	J	0.020	1.0
Vanadium	ND		0.14	5.0

Method:	6020	Analysis Batch: 280-21380		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20103		Lab File ID:	227SMPL.D
Dilution:	10			Initial Weight/Volume:	50 mL
Date Analyzed:	07/01/2010 0447	Run Type:	DL	Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 1330				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	7600		3.1	10
Zinc	12000		20	100

6020 Metals (ICP/MS)-Dissolved

Method:	6020	Analysis Batch: 280-20904		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20140		Lab File ID:	104SMPL.D
Dilution:	2.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/26/2010 0041			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	ND		0.14	4.0
Arsenic	ND		0.42	10
Barium	8.2		0.58	2.0
Beryllium	1.9	J	0.16	2.0
Cadmium	35		0.080	2.0
Chromium	ND		1.0	4.0
Cobalt	10		0.020	2.0
Copper	580		1.1	4.0
Lead	51		0.36	2.0
Nickel	10		0.60	4.0
Selenium	2.1	J	1.4	10
Silver	0.13	J	0.030	10
Thallium	0.11	J B	0.040	2.0
Vanadium	ND		0.28	10

Client: URS Corporation

Job Number: 280-4578-1

Client Sample ID: MMSW01

Lab Sample ID: 280-4578-4
Client Matrix: Water

Date Sampled: 06/15/2010 1115
Date Received: 06/17/2010 1505

6020 Metals (ICP/MS)-Dissolved

Method:	6020	Analysis Batch: 280-20904		Instrument ID:	MT_024
Preparation:	3005A	Prep Batch: 280-20140		Lab File ID:	101SMPL.D
Dilution:	20			Initial Weight/Volume:	50 mL
Date Analyzed:	06/26/2010 0033	Run Type:	DL	Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	7800		6.2	20
Zinc	12000		40	200

7470A Mercury (CVAA)

Method:	7470A	Analysis Batch: 280-20496		Instrument ID:	MT_033
Preparation:	7470A	Prep Batch: 280-20069		Lab File ID:	100622AA.txt
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	06/22/2010 1715			Final Weight/Volume:	10 mL
Date Prepared:	06/22/2010 0950				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	ND		0.027	0.20

7470A Mercury (CVAA)-Dissolved

Method:	7470A	Analysis Batch: 280-20496		Instrument ID:	MT_033
Preparation:	7470A	Prep Batch: 280-20183		Lab File ID:	100622AA.txt
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	06/22/2010 1434			Final Weight/Volume:	10 mL
Date Prepared:	06/22/2010 0950				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.042	J B	0.027	0.20

DATA REPORTING QUALIFIERS

Client: URS Corporation

Job Number: 280-4578-1

Lab Section	Qualifier	Description
Metals		
	B	Compound was found in the blank and sample.
	^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.
	F	MS or MSD exceeds the control limits
	4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

QUALITY CONTROL RESULTS

Client: URS Corporation

Job Number: 280-4578-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-19910					
LCS 280-19910/2-A	Lab Control Sample	T	Water	3010A	
MB 280-19910/1-A	Method Blank	T	Water	3010A	
280-4567-A-2-B MS	Matrix Spike	T	Water	3010A	
280-4567-A-2-C MSD	Matrix Spike Duplicate	T	Water	3010A	
280-4578-1	RBSW01	T	Water	3010A	
280-4578-2	MMSW03	T	Water	3010A	
280-4578-3	MMSW02	T	Water	3010A	
280-4578-4	MMSW01	T	Water	3010A	
Prep Batch: 280-20069					
LCS 280-20069/2-A	Lab Control Sample	T	Water	7470A	
LCSD 280-20069/3-A	Lab Control Sample Duplicate	T	Water	7470A	
MB 280-20069/1-A	Method Blank	T	Water	7470A	
280-4578-1	RBSW01	T	Water	7470A	
280-4578-1MS	Matrix Spike	T	Water	7470A	
280-4578-1MSD	Matrix Spike Duplicate	T	Water	7470A	
280-4578-2	MMSW03	T	Water	7470A	
280-4578-3	MMSW02	T	Water	7470A	
280-4578-4	MMSW01	T	Water	7470A	
Prep Batch: 280-20103					
LCS 280-20103/2-A	Lab Control Sample	R	Water	3005A	
MB 280-20103/1-A	Method Blank	R	Water	3005A	
280-4578-1	RBSW01	R	Water	3005A	
280-4578-2	MMSW03	R	Water	3005A	
280-4578-2DL	MMSW03	R	Water	3005A	
280-4578-2MS	Matrix Spike	R	Water	3005A	
280-4578-2MSDL	Matrix Spike	R	Water	3005A	
280-4578-2MSD	Matrix Spike Duplicate	R	Water	3005A	
280-4578-2MSDDL	Matrix Spike Duplicate	R	Water	3005A	
280-4578-3	MMSW02	R	Water	3005A	
280-4578-3DL	MMSW02	R	Water	3005A	
280-4578-4	MMSW01	R	Water	3005A	
280-4578-4DL	MMSW01	R	Water	3005A	

Client: URS Corporation

Job Number: 280-4578-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-20140					
LCS 280-20130/2-B	Lab Control Sample	D	Water	3005A	
MB 280-20130/1-B	Method Blank	D	Water	3005A	
280-4508-A-10-B MS	Matrix Spike	D	Water	3005A	
280-4508-A-10-C MSD	Matrix Spike Duplicate	D	Water	3005A	
280-4578-1	RBSW01	D	Water	3005A	
280-4578-1DL	RBSW01	D	Water	3005A	
280-4578-2	MMSW03	D	Water	3005A	
280-4578-2DL	MMSW03	D	Water	3005A	
280-4578-3	MMSW02	D	Water	3005A	
280-4578-3DL	MMSW02	D	Water	3005A	
280-4578-4	MMSW01	D	Water	3005A	
280-4578-4DL	MMSW01	D	Water	3005A	
Prep Batch: 280-20144					
LCS 280-20130/2-C	Lab Control Sample	D	Water	3005A	
MB 280-20130/1-C	Method Blank	D	Water	3005A	
280-4508-A-10-E MS	Matrix Spike	D	Water	3005A	
280-4508-A-10-F MSD	Matrix Spike Duplicate	D	Water	3005A	
280-4578-1	RBSW01	D	Water	3005A	
280-4578-2	MMSW03	D	Water	3005A	
280-4578-3	MMSW02	D	Water	3005A	
280-4578-4	MMSW01	D	Water	3005A	
Prep Batch: 280-20183					
LCS 280-20130/2-E	Lab Control Sample	D	Water	7470A	
MB 280-20130/1-E	Method Blank	D	Water	7470A	
280-4578-1	RBSW01	D	Water	7470A	
280-4578-2	MMSW03	D	Water	7470A	
280-4578-3	MMSW02	D	Water	7470A	
280-4578-4	MMSW01	D	Water	7470A	
280-4616-A-1-K MS	Matrix Spike	D	Water	7470A	
280-4616-A-1-L MSD	Matrix Spike Duplicate	D	Water	7470A	
Analysis Batch:280-20476					
LCS 280-19910/2-A	Lab Control Sample	T	Water	6010B	280-19910
MB 280-19910/1-A	Method Blank	T	Water	6010B	280-19910
280-4567-A-2-B MS	Matrix Spike	T	Water	6010B	280-19910
280-4567-A-2-C MSD	Matrix Spike Duplicate	T	Water	6010B	280-19910
280-4578-1	RBSW01	T	Water	6010B	280-19910
280-4578-2	MMSW03	T	Water	6010B	280-19910
280-4578-3	MMSW02	T	Water	6010B	280-19910
280-4578-4	MMSW01	T	Water	6010B	280-19910

Client: URS Corporation

Job Number: 280-4578-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Analysis Batch:280-20496					
LCS 280-20069/2-A	Lab Control Sample	T	Water	7470A	280-20069
LCSD 280-20069/3-A	Lab Control Sample Duplicate	T	Water	7470A	280-20069
MB 280-20069/1-A	Method Blank	T	Water	7470A	280-20069
LCS 280-20130/2-E	Lab Control Sample	D	Water	7470A	280-20183
MB 280-20130/1-E	Method Blank	D	Water	7470A	280-20183
280-4578-1	RBSW01	T	Water	7470A	280-20069
280-4578-1MS	Matrix Spike	T	Water	7470A	280-20069
280-4578-1MSD	Matrix Spike Duplicate	T	Water	7470A	280-20069
280-4578-1	RBSW01	D	Water	7470A	280-20183
280-4578-2	MMSW03	T	Water	7470A	280-20069
280-4578-2	MMSW03	D	Water	7470A	280-20183
280-4578-3	MMSW02	T	Water	7470A	280-20069
280-4578-3	MMSW02	D	Water	7470A	280-20183
280-4578-4	MMSW01	T	Water	7470A	280-20069
280-4578-4	MMSW01	D	Water	7470A	280-20183
280-4616-A-1-K MS	Matrix Spike	D	Water	7470A	280-20183
280-4616-A-1-L MSD	Matrix Spike Duplicate	D	Water	7470A	280-20183
Analysis Batch:280-20639					
LCS 280-20130/2-C	Lab Control Sample	D	Water	6010B	280-20144
MB 280-20130/1-C	Method Blank	D	Water	6010B	280-20144
280-4508-A-10-E MS	Matrix Spike	D	Water	6010B	280-20144
280-4508-A-10-F MSD	Matrix Spike Duplicate	D	Water	6010B	280-20144
280-4578-1	RBSW01	D	Water	6010B	280-20144
280-4578-2	MMSW03	D	Water	6010B	280-20144
280-4578-3	MMSW02	D	Water	6010B	280-20144
280-4578-4	MMSW01	D	Water	6010B	280-20144
Analysis Batch:280-20652					
LCS 280-19910/2-A	Lab Control Sample	T	Water	6010B	280-19910
MB 280-19910/1-A	Method Blank	T	Water	6010B	280-19910
280-4567-A-2-B MS	Matrix Spike	T	Water	6010B	280-19910
280-4567-A-2-C MSD	Matrix Spike Duplicate	T	Water	6010B	280-19910
280-4578-1	RBSW01	T	Water	6010B	280-19910
280-4578-2	MMSW03	T	Water	6010B	280-19910
280-4578-3	MMSW02	T	Water	6010B	280-19910
280-4578-4	MMSW01	T	Water	6010B	280-19910
Analysis Batch:280-20678					
LCS 280-20130/2-B	Lab Control Sample	D	Water	6020	280-20140
MB 280-20130/1-B	Method Blank	D	Water	6020	280-20140

Client: URS Corporation

Job Number: 280-4578-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Analysis Batch:280-20904					
280-4508-A-10-B MS	Matrix Spike	D	Water	6020	280-20140
280-4508-A-10-C MSD	Matrix Spike Duplicate	D	Water	6020	280-20140
280-4578-1	RBSW01	D	Water	6020	280-20140
280-4578-1DL	RBSW01	D	Water	6020	280-20140
280-4578-2	MMSW03	D	Water	6020	280-20140
280-4578-2DL	MMSW03	D	Water	6020	280-20140
280-4578-3	MMSW02	D	Water	6020	280-20140
280-4578-3DL	MMSW02	D	Water	6020	280-20140
280-4578-4	MMSW01	D	Water	6020	280-20140
280-4578-4DL	MMSW01	D	Water	6020	280-20140
Analysis Batch:280-20949					
280-4578-1	RBSW01	T	Water	6010B	280-19910
280-4578-2	MMSW03	T	Water	6010B	280-19910
280-4578-3	MMSW02	T	Water	6010B	280-19910
280-4578-4	MMSW01	T	Water	6010B	280-19910
Analysis Batch:280-21026					
LCS 280-20130/2-C	Lab Control Sample	D	Water	6010B	280-20144
MB 280-20130/1-C	Method Blank	D	Water	6010B	280-20144
280-4508-A-10-E MS	Matrix Spike	D	Water	6010B	280-20144
280-4508-A-10-F MSD	Matrix Spike Duplicate	D	Water	6010B	280-20144
280-4578-1	RBSW01	D	Water	6010B	280-20144
280-4578-2	MMSW03	D	Water	6010B	280-20144
280-4578-3	MMSW02	D	Water	6010B	280-20144
280-4578-4	MMSW01	D	Water	6010B	280-20144
Analysis Batch:280-21101					
LCS 280-20103/2-A	Lab Control Sample	R	Water	6020	280-20103
MB 280-20103/1-A	Method Blank	R	Water	6020	280-20103
280-4578-1	RBSW01	R	Water	6020	280-20103
280-4578-2	MMSW03	R	Water	6020	280-20103
280-4578-2MS	Matrix Spike	R	Water	6020	280-20103
280-4578-2MSD	Matrix Spike Duplicate	R	Water	6020	280-20103
280-4578-3	MMSW02	R	Water	6020	280-20103
280-4578-4	MMSW01	R	Water	6020	280-20103
Analysis Batch:280-21165					
280-4578-2	MMSW03	D	Water	6010B	280-20144
280-4578-3	MMSW02	D	Water	6010B	280-20144

Client: URS Corporation

Job Number: 280-4578-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Analysis Batch:280-21380					
280-4578-2DL	MMSW03	R	Water	6020	280-20103
280-4578-2MSDL	Matrix Spike	R	Water	6020	280-20103
280-4578-2MSDDL	Matrix Spike Duplicate	R	Water	6020	280-20103
280-4578-3DL	MMSW02	R	Water	6020	280-20103
280-4578-4DL	MMSW01	R	Water	6020	280-20103

Report Basis
D = Dissolved
R = Total Recoverable
T = Total

Client: URS Corporation

Job Number: 280-4578-1

Method Blank - Batch: 280-19910

Method: 6010B
Preparation: 3010A

Lab Sample ID: MB 280-19910/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/23/2010 1446
Date Prepared: 06/21/2010 1500

Analysis Batch: 280-20476
Prep Batch: 280-19910
Units: ug/L

Instrument ID: MT_025
Lab File ID: 25b062310.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	MDL	RL
Aluminum	ND		18	100
Antimony	ND		3.1	10
Arsenic	ND		4.4	15
Barium	1.87	J	0.58	10
Beryllium	ND		0.47	1.0
Cadmium	ND		0.45	5.0
Calcium	ND		34	200
Chromium	ND		0.66	10
Cobalt	ND		0.12	10
Copper	ND		0.14	15
Iron	ND		22	100
Lead	ND		2.6	9.0
Magnesium	ND		11	200
Manganese	0.250	J	0.25	10
Nickel	ND		1.3	40
Potassium	ND		240	3000
Selenium	ND		4.9	15
Silver	ND		0.93	10
Zinc	ND		4.5	20
Sodium	193	J	92	1000
Vanadium	ND		1.1	10

Method Blank - Batch: 280-19910

Method: 6010B
Preparation: 3010A

Lab Sample ID: MB 280-19910/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/24/2010 1932
Date Prepared: 06/21/2010 1500

Analysis Batch: 280-20652
Prep Batch: 280-19910
Units: ug/L

Instrument ID: MT_025
Lab File ID: 25A3062410.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	MDL	RL
Thallium	ND		4.9	15

Client: URS Corporation

Job Number: 280-4578-1

Lab Control Sample - Batch: 280-19910

Method: 6010B
Preparation: 3010A

Lab Sample ID: LCS 280-19910/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/23/2010 1448
Date Prepared: 06/21/2010 1500

Analysis Batch: 280-20476
Prep Batch: 280-19910
Units: ug/L

Instrument ID: MT_025
Lab File ID: 25b062310.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	2000	1830	92	87 - 111	
Antimony	500	479	96	88 - 110	
Arsenic	1000	967	97	88 - 110	
Barium	2000	2010	101	90 - 112	
Beryllium	50.0	47.0	94	89 - 113	
Cadmium	100	99.3	99	88 - 111	
Calcium	50000	47800	96	90 - 111	
Chromium	200	197	98	90 - 113	
Cobalt	500	475	95	89 - 111	
Copper	250	255	102	86 - 112	
Iron	1000	987	99	89 - 115	
Lead	500	488	98	89 - 110	
Magnesium	50000	49500	99	90 - 113	
Manganese	500	495	99	90 - 110	
Nickel	500	481	96	89 - 111	
Potassium	50000	50000	100	89 - 114	
Selenium	2000	1980	99	85 - 112	
Silver	50.0	52.9	106	86 - 115	
Zinc	500	493	99	85 - 111	
Sodium	50000	52900	106	90 - 115	
Vanadium	500	506	101	90 - 111	

Lab Control Sample - Batch: 280-19910

Method: 6010B
Preparation: 3010A

Lab Sample ID: LCS 280-19910/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/24/2010 1934
Date Prepared: 06/21/2010 1500

Analysis Batch: 280-20652
Prep Batch: 280-19910
Units: ug/L

Instrument ID: MT_025
Lab File ID: 25A3062410.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Thallium	2000	1910	96	88 - 110	

Client: URS Corporation

Job Number: 280-4578-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-19910

Method: 6010B
Preparation: 3010A

MS Lab Sample ID:	280-4567-A-2-B MS	Analysis Batch: 280-20476	Instrument ID: MT_025
Client Matrix:	Water	Prep Batch: 280-19910	Lab File ID: 25b062310.txt
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	06/23/2010 1459		Final Weight/Volume: 50 mL
Date Prepared:	06/21/2010 1500		

MSD Lab Sample ID:	280-4567-A-2-C MSD	Analysis Batch: 280-20476	Instrument ID: MT_025
Client Matrix:	Water	Prep Batch: 280-19910	Lab File ID: 25b062310.txt
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	06/23/2010 1502		Final Weight/Volume: 50 mL
Date Prepared:	06/21/2010 1500		

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Aluminum	108	105	83 - 119	3	25		
Antimony	101	101	81 - 124	0	25		
Arsenic	108	107	84 - 124	2	25		
Barium	104	101	85 - 120	3	25		
Beryllium	94	93	79 - 121	1	25		
Cadmium	108	106	82 - 119	2	25		
Calcium	72	60	48 - 153	1	25	4	4
Chromium	98	97	73 - 135	2	25		
Cobalt	92	90	82 - 119	2	25		
Copper	107	105	82 - 129	2	25		
Iron	101	95	52 - 155	4	25		
Lead	89	88	89 - 121	2	25		F
Magnesium	100	93	62 - 146	1	25		
Manganese	98	95	79 - 121	2	25		
Nickel	92	91	84 - 120	2	25		
Potassium	106	103	76 - 132	1	25		
Selenium	109	107	71 - 140	2	25		
Silver	122	119	75 - 141	3	25		
Zinc	99	96	60 - 137	3	25		
Sodium	77	80	70 - 203	0	40	4	4
Vanadium	104	101	85 - 120	2	25		

Client: URS Corporation

Job Number: 280-4578-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-19910

Method: 6010B
Preparation: 3010A

MS Lab Sample ID:	280-4567-A-2-B MS	Analysis Batch: 280-20652	Instrument ID: MT_025
Client Matrix:	Water	Prep Batch: 280-19910	Lab File ID: 25A3062410.txt
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	06/24/2010 1942		Final Weight/Volume: 50 mL
Date Prepared:	06/21/2010 1500		

MSD Lab Sample ID:	280-4567-A-2-C MSD	Analysis Batch: 280-20652	Instrument ID: MT_025
Client Matrix:	Water	Prep Batch: 280-19910	Lab File ID: 25A3062410.txt
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	06/24/2010 1946		Final Weight/Volume: 50 mL
Date Prepared:	06/21/2010 1500		

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Thallium	81	79	90 - 116	2	25	F	F

Client: URS Corporation

Job Number: 280-4578-1

Matrix Spike/
Matrix Spike Duplicate Data Report - Batch: 280-19910

Method: 6010B
Preparation: 3010A

MS Lab Sample ID:	280-4567-A-2-B MS	Units: ug/L	
Client Matrix:	Water		
Dilution:	1.0		
Date Analyzed:	06/23/2010 1459		
Date Prepared:	06/21/2010 1500		

MSD Lab Sample ID:	280-4567-A-2-C MSD
Client Matrix:	Water
Dilution:	1.0
Date Analyzed:	06/23/2010 1502
Date Prepared:	06/21/2010 1500

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual	
Aluminum	370		2000	2000	2530		2460	
Antimony	ND		500	500	505		503	
Arsenic	ND		1000	1000	1080		1070	
Barium	30		2000	2000	2110		2060	
Beryllium	ND		50.0	50.0	47.0		46.3	
Cadmium	2.0	J	100	100	110		108	
Calcium	380000		50000	50000	412000	4	406000	4
Chromium	1.4	J	200	200	198		195	
Cobalt	15		500	500	476		467	
Copper	11	J	250	250	279		272	
Iron	560		1000	1000	1560		1500	
Lead	ND		500	500	446		440	F
Magnesium	200000		50000	50000	246000		243000	
Manganese	290		500	500	782		768	
Nickel	11	J	500	500	473		464	
Potassium	39000		50000	50000	91600		90200	
Selenium	40		2000	2000	2220		2180	
Silver	ND		50.0	50.0	60.9		59.4	
Zinc	15	J	500	500	511		497	
Sodium	2000000		50000	50000	2040000	4	2050000	4
Vanadium	2.1	J	500	500	521		509	

Matrix Spike/
Matrix Spike Duplicate Data Report - Batch: 280-19910

Method: 6010B
Preparation: 3010A

MS Lab Sample ID:	280-4567-A-2-B MS	Units: ug/L	
Client Matrix:	Water		
Dilution:	1.0		
Date Analyzed:	06/24/2010 1942		
Date Prepared:	06/21/2010 1500		

MSD Lab Sample ID:	280-4567-A-2-C MSD
Client Matrix:	Water
Dilution:	1.0
Date Analyzed:	06/24/2010 1946
Date Prepared:	06/21/2010 1500

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual	
Thallium	4.9	J	2000	2000	1610	F	1580	F

Client: URS Corporation

Job Number: 280-4578-1

Method Blank - Batch: 280-20144

Method: 6010B
Preparation: 3005A
Dissolved

Lab Sample ID: MB 280-20130/1-C
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/24/2010 2152
Date Prepared: 06/22/2010 0830

Analysis Batch: 280-20639
Prep Batch: 280-20144
Units: ug/L

Instrument ID: MT_026
Lab File ID: 26d062410.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	MDL	RL
Aluminum	ND		18	100
Antimony	ND		3.1	10
Arsenic	ND		4.4	15
Barium	ND		0.58	10
Beryllium	ND		0.47	1.0
Cadmium	ND		0.45	5.0
Calcium	ND		34	200
Chromium	ND		0.66	10
Cobalt	ND		0.12	10
Copper	ND		0.14	15
Lead	ND		2.6	9.0
Magnesium	ND		11	200
Manganese	ND		0.25	10
Nickel	ND		1.3	40
Potassium	ND		240	3000
Selenium	ND		4.9	15
Silver	ND		0.93	10
Thallium	ND		4.9	15
Zinc	ND		4.5	20
Sodium	491	J ^	92	1000
Vanadium	ND		1.1	10

Method Blank - Batch: 280-20144

Method: 6010B
Preparation: 3005A
Dissolved

Lab Sample ID: MB 280-20130/1-C
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/28/2010 1607
Date Prepared: 06/22/2010 0830

Analysis Batch: 280-21026
Prep Batch: 280-20144
Units: ug/L

Instrument ID: MT_026
Lab File ID: 26a062810.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	MDL	RL
Iron	ND		22	100

Client: URS Corporation

Job Number: 280-4578-1

Lab Control Sample - Batch: 280-20144

Method: 6010B
Preparation: 3005A
Dissolved

Lab Sample ID: LCS 280-20130/2-C
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/24/2010 2155
Date Prepared: 06/22/2010 0830

Analysis Batch: 280-20639
Prep Batch: 280-20144
Units: ug/L

Instrument ID: MT_026
Lab File ID: 26d062410.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	2000	1850	93	87 - 111	
Antimony	500	488	98	88 - 110	
Arsenic	1000	992	99	88 - 110	
Barium	2000	2050	102	90 - 112	
Beryllium	50.0	46.4	93	89 - 113	
Cadmium	100	100	100	88 - 111	
Calcium	50000	47400	95	90 - 111	
Chromium	200	198	99	90 - 113	
Cobalt	500	477	95	89 - 111	
Copper	250	242	97	86 - 112	
Lead	500	479	96	89 - 110	
Magnesium	50000	47200	94	90 - 113	
Manganese	500	478	96	90 - 110	
Nickel	500	461	92	89 - 111	
Potassium	50000	52400	105	89 - 114	
Selenium	2000	1990	100	85 - 112	
Silver	50.0	54.4	109	86 - 115	
Thallium	2000	1930	97	88 - 110	
Zinc	500	494	99	85 - 111	
Sodium	50000	54300	109	90 - 115	
Vanadium	500	478	96	90 - 111	

Lab Control Sample - Batch: 280-20144

Method: 6010B
Preparation: 3005A
Dissolved

Lab Sample ID: LCS 280-20130/2-C
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/28/2010 1609
Date Prepared: 06/22/2010 0830

Analysis Batch: 280-21026
Prep Batch: 280-20144
Units: ug/L

Instrument ID: MT_026
Lab File ID: 26a062810.txt
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Iron	1000	993	99	89 - 115	

Client: URS Corporation

Job Number: 280-4578-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-20144

Method: 6010B
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-4508-A-10-E MS	Analysis Batch: 280-20639	Instrument ID: MT_026
Client Matrix:	Water	Prep Batch: 280-20144	Lab File ID: 26d062410.txt
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	06/24/2010 2235		Final Weight/Volume: 50 mL
Date Prepared:	06/22/2010 0830		

MSD Lab Sample ID:	280-4508-A-10-F MSD	Analysis Batch: 280-20639	Instrument ID: MT_026
Client Matrix:	Water	Prep Batch: 280-20144	Lab File ID: 26d062410.txt
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	06/24/2010 2237		Final Weight/Volume: 50 mL
Date Prepared:	06/22/2010 0830		

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Aluminum	92	92	83 - 119	1	25		
Antimony	98	97	81 - 124	1	25		
Arsenic	99	99	84 - 124	1	25		
Barium	103	102	85 - 120	0	25		
Beryllium	92	92	79 - 121	1	25		
Cadmium	101	100	82 - 119	1	25		
Calcium	94	94	48 - 153	1	25		
Chromium	100	100	73 - 135	0	25		
Cobalt	96	95	82 - 119	0	25		
Copper	98	97	82 - 129	1	25		
Lead	95	95	89 - 121	0	25		
Magnesium	94	94	62 - 146	1	25		
Manganese	96	95	79 - 121	1	25		
Nickel	92	92	84 - 120	0	25		
Potassium	106	105	76 - 132	0	25		
Selenium	100	99	71 - 140	0	25		
Silver	110	107	75 - 141	3	25		
Thallium	96	95	90 - 116	1	25		
Zinc	98	98	60 - 137	1	25		
Sodium	109	107	70 - 203	2	40		
Vanadium	96	95	85 - 120	0	25		

Client: URS Corporation

Job Number: 280-4578-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-20144

Method: 6010B
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-4508-A-10-E MS	Analysis Batch: 280-21026	Instrument ID: MT_026
Client Matrix:	Water	Prep Batch: 280-20144	Lab File ID: 26a062810.txt
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	06/28/2010 1646		Final Weight/Volume: 50 mL
Date Prepared:	06/22/2010 0830		

MSD Lab Sample ID:	280-4508-A-10-F MSD	Analysis Batch: 280-21026	Instrument ID: MT_026
Client Matrix:	Water	Prep Batch: 280-20144	Lab File ID: 26a062810.txt
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	06/28/2010 1649		Final Weight/Volume: 50 mL
Date Prepared:	06/22/2010 0830		

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Iron	100	100	52 - 155	0	25		

Client: URS Corporation

Job Number: 280-4578-1

Matrix Spike/
Matrix Spike Duplicate Data Report - Batch: 280-20144

Method: 6010B
Preparation: 3005A
Dissolved

MS Lab Sample ID: 280-4508-A-10-E MS
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/24/2010 2235
Date Prepared: 06/22/2010 0830

Units: ug/L

MSD Lab Sample ID: 280-4508-A-10-F MSD
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/24/2010 2237
Date Prepared: 06/22/2010 0830

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Aluminum	ND		2000	2000	1850	1830
Antimony	ND		500	500	491	487
Arsenic	ND		1000	1000	994	986
Barium	1.3	J	2000	2000	2050	2040
Beryllium	ND		50.0	50.0	46.2	45.8
Cadmium	ND		100	100	101	100
Calcium	6400		50000	50000	53600	53300
Chromium	ND		200	200	200	199
Cobalt	ND		500	500	479	477
Copper	ND		250	250	244	242
Lead	ND		500	500	477	475
Magnesium	3400		50000	50000	50500	50200
Manganese	31		500	500	512	509
Nickel	ND		500	500	460	459
Potassium	ND		50000	50000	52900	52600
Selenium	ND		2000	2000	1990	1980
Silver	ND		50.0	50.0	55.1	53.7
Thallium	ND		2000	2000	1910	1900
Zinc	ND		500	500	492	488
Sodium	3800		50000	50000	58400	57500
Vanadium	ND		500	500	479	477

Matrix Spike/
Matrix Spike Duplicate Data Report - Batch: 280-20144

Method: 6010B
Preparation: 3005A
Dissolved

MS Lab Sample ID: 280-4508-A-10-E MS
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/28/2010 1646
Date Prepared: 06/22/2010 0830

Units: ug/L

MSD Lab Sample ID: 280-4508-A-10-F MSD
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/28/2010 1649
Date Prepared: 06/22/2010 0830

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Iron	420	1000	1000	1420	1420

Client: URS Corporation

Job Number: 280-4578-1

Method Blank - Batch: 280-20103

Method: 6020
Preparation: 3005A
Total Recoverable

Lab Sample ID: MB 280-20103/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/29/2010 0505
Date Prepared: 06/22/2010 1330

Analysis Batch: 280-21101
Prep Batch: 280-20103
Units: ug/L

Instrument ID: MT_024
Lab File ID: 168_BLK.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	MDL	RL
Antimony	ND		0.070	2.0
Arsenic	ND		0.21	5.0
Barium	ND		0.29	1.0
Beryllium	ND		0.080	1.0
Cadmium	ND		0.040	1.0
Chromium	ND		0.50	2.0
Cobalt	ND		0.010	1.0
Copper	ND		0.56	2.0
Lead	ND		0.18	1.0
Manganese	ND		0.31	1.0
Nickel	ND		0.30	2.0
Selenium	ND		0.70	5.0
Silver	ND		0.015	5.0
Thallium	ND		0.020	1.0
Vanadium	ND		0.14	5.0
Zinc	ND		2.0	10

Client: URS Corporation

Job Number: 280-4578-1

Lab Control Sample - Batch: 280-20103

Method: 6020
Preparation: 3005A
Total Recoverable

Lab Sample ID: LCS 280-20103/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/29/2010 0507
Date Prepared: 06/22/2010 1330

Analysis Batch: 280-21101
Prep Batch: 280-20103
Units: ug/L

Instrument ID: MT_024
Lab File ID: 169_LCS.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Antimony	40.0	39.6	99	85 - 115	
Arsenic	40.0	41.7	104	85 - 117	
Barium	40.0	40.4	101	85 - 118	
Beryllium	40.0	41.4	104	80 - 125	
Cadmium	40.0	39.9	100	85 - 115	
Chromium	40.0	40.6	102	84 - 121	
Cobalt	40.0	39.8	99	85 - 120	
Copper	40.0	40.6	102	85 - 119	
Lead	40.0	40.2	100	85 - 118	
Manganese	40.0	40.3	101	85 - 117	
Nickel	40.0	40.3	101	85 - 119	
Selenium	40.0	43.0	108	77 - 122	
Silver	40.0	40.6	102	85 - 115	
Thallium	40.0	40.6	102	85 - 118	
Vanadium	40.0	40.8	102	85 - 120	
Zinc	40.0	41.1	103	83 - 122	

Client: URS Corporation

Job Number: 280-4578-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-20103

Method: 6020
Preparation: 3005A
Total Recoverable

MS Lab Sample ID:	280-4578-2	Analysis Batch:	280-21101	Instrument ID:	MT_024
Client Matrix:	Water	Prep Batch:	280-20103	Lab File ID:	174_MS.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/29/2010 0521			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 1330				

MSD Lab Sample ID:	280-4578-2	Analysis Batch:	280-21101	Instrument ID:	MT_024
Client Matrix:	Water	Prep Batch:	280-20103	Lab File ID:	175_MSD.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	06/29/2010 0524			Final Weight/Volume:	50 mL
Date Prepared:	06/22/2010 1330				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Antimony	103	103	85 - 115	0	20		
Arsenic	109	108	85 - 117	1	20		
Barium	101	102	85 - 118	1	20		
Beryllium	94	96	80 - 125	2	20		
Cadmium	99	100	85 - 115	1	20		
Chromium	104	105	84 - 121	1	20		
Cobalt	101	105	85 - 120	3	20		
Copper	96	101	85 - 119	3	20		
Lead	84	88	85 - 118	1	20	F	
Nickel	99	104	85 - 119	4	20		
Selenium	114	122	77 - 122	7	20		
Silver	92	93	85 - 115	1	20		
Thallium	96	98	85 - 118	2	20		
Vanadium	107	106	85 - 120	2	20		

Client: URS Corporation

Job Number: 280-4578-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-20103

Method: 6020
Preparation: 3005A
Total Recoverable

MS Lab Sample ID:	280-4578-2DL	Analysis Batch: 280-21380	Instrument ID: MT_024
Client Matrix:	Water	Prep Batch: 280-20103	Lab File ID: 224_MS.D
Dilution:	10	Run Type: DL	Initial Weight/Volume: 50 mL
Date Analyzed:	07/01/2010 0439		Final Weight/Volume: 50 mL
Date Prepared:	06/22/2010 1330		

MSD Lab Sample ID:	280-4578-2DL	Analysis Batch: 280-21380	Instrument ID: MT_024
Client Matrix:	Water	Prep Batch: 280-20103	Lab File ID: 225_MSD.D
Dilution:	10	Run Type: DL	Initial Weight/Volume: 50 mL
Date Analyzed:	07/01/2010 0442		Final Weight/Volume: 50 mL
Date Prepared:	06/22/2010 1330		

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Manganese	-2180	875	85 - 117	6	20	4	4
Zinc	-2100	275	83 - 122	5	20	4	4

Client: URS Corporation

Job Number: 280-4578-1

Matrix Spike/
Matrix Spike Duplicate Data Report - Batch: 280-20103

Method: 6020
Preparation: 3005A
Total Recoverable

MS Lab Sample ID:	280-4578-2	Units: ug/L	
Client Matrix:	Water		
Dilution:	1.0		
Date Analyzed:	06/29/2010 0521		
Date Prepared:	06/22/2010 1330		

MSD Lab Sample ID:	280-4578-2
Client Matrix:	Water
Dilution:	1.0
Date Analyzed:	06/29/2010 0524
Date Prepared:	06/22/2010 1330

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual	
Antimony	0.17	J	40.0	40.0	41.4		41.3	
Arsenic	2.8	J	40.0	40.0	46.4		46.0	
Barium	8.9		40.0	40.0	49.1		49.6	
Beryllium	3.2		40.0	40.0	40.8		41.8	
Cadmium	34		40.0	40.0	73.8		74.2	
Chromium	ND		40.0	40.0	41.4		42.0	
Cobalt	18		40.0	40.0	58.6		60.5	
Copper	26		40.0	40.0	64.2		66.4	
Lead	140		40.0	40.0	170	F	172	
Nickel	11		40.0	40.0	50.8		52.7	
Selenium	ND		40.0	40.0	45.4		48.9	
Silver	0.036	J	40.0	40.0	37.0		37.2	
Thallium	0.15	J	40.0	40.0	38.4		39.3	
Vanadium	0.15	J	40.0	40.0	43.1		42.4	

Matrix Spike/
Matrix Spike Duplicate Data Report - Batch: 280-20103

Method: 6020
Preparation: 3005A
Total Recoverable

MS Lab Sample ID:	280-4578-2DL	Units: ug/L	
Client Matrix:	Water		
Dilution:	10		
Date Analyzed:	07/01/2010 0439		
Date Prepared:	06/22/2010 1330		
Run Type:	DL		

MSD Lab Sample ID:	280-4578-2DL
Client Matrix:	Water
Dilution:	10
Date Analyzed:	07/01/2010 0442
Date Prepared:	06/22/2010 1330
Run Type:	DL

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual	
Manganese	20000		40.0	40.0	19500	4	20700	4
Zinc	20000		40.0	40.0	19600	4	20600	4

Client: URS Corporation

Job Number: 280-4578-1

Method Blank - Batch: 280-20140

Method: 6020
Preparation: 3005A
Dissolved

Lab Sample ID: MB 280-20130/1-B
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/25/2010 0822
Date Prepared: 06/22/2010 0830

Analysis Batch: 280-20678
Prep Batch: 280-20140
Units: ug/L

Instrument ID: MT_024
Lab File ID: 275_BLK.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	MDL	RL
Antimony	ND		0.070	2.0
Arsenic	ND		0.21	5.0
Barium	ND		0.29	1.0
Beryllium	ND		0.080	1.0
Cadmium	ND		0.040	1.0
Chromium	ND		0.50	2.0
Cobalt	ND		0.010	1.0
Copper	ND		0.56	2.0
Lead	ND		0.18	1.0
Manganese	ND		0.31	1.0
Nickel	ND		0.30	2.0
Selenium	ND		0.70	5.0
Silver	ND		0.015	5.0
Thallium	0.0225	J	0.020	1.0
Vanadium	ND		0.14	5.0
Zinc	ND		2.0	10

Client: URS Corporation

Job Number: 280-4578-1

Lab Control Sample - Batch: 280-20140

Method: 6020
Preparation: 3005A
Dissolved

Lab Sample ID: LCS 280-20130/2-B
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/25/2010 0824
Date Prepared: 06/22/2010 0830

Analysis Batch: 280-20678
Prep Batch: 280-20140
Units: ug/L

Instrument ID: MT_024
Lab File ID: 276_LCS.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Antimony	40.0	39.7	99	85 - 115	
Arsenic	40.0	41.3	103	85 - 117	
Barium	40.0	41.2	103	85 - 118	
Beryllium	40.0	42.4	106	80 - 125	
Cadmium	40.0	41.2	103	85 - 115	
Chromium	40.0	40.0	100	84 - 121	
Cobalt	40.0	40.2	101	85 - 120	
Copper	40.0	40.6	102	85 - 119	
Lead	40.0	41.5	104	85 - 118	
Manganese	40.0	40.2	100	85 - 117	
Nickel	40.0	41.4	104	85 - 119	
Selenium	40.0	42.4	106	77 - 122	
Silver	40.0	40.2	100	85 - 115	
Thallium	40.0	43.2	108	85 - 118	
Vanadium	40.0	39.7	99	85 - 120	
Zinc	40.0	43.3	108	83 - 122	

Client: URS Corporation

Job Number: 280-4578-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-20140

Method: 6020
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-4508-A-10-B MS	Analysis Batch: 280-20904	Instrument ID: MT_024
Client Matrix:	Water	Prep Batch: 280-20140	Lab File ID: 090_MS.D
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	06/26/2010 0002		Final Weight/Volume: 50 mL
Date Prepared:	06/22/2010 0830		

MSD Lab Sample ID:	280-4508-A-10-C MSD	Analysis Batch: 280-20904	Instrument ID: MT_024
Client Matrix:	Water	Prep Batch: 280-20140	Lab File ID: 091_MSD.D
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	06/26/2010 0005		Final Weight/Volume: 50 mL
Date Prepared:	06/22/2010 0830		

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Antimony	106	102	85 - 115	3	20		
Arsenic	106	103	85 - 117	3	20		
Barium	108	103	85 - 118	4	20		
Beryllium	109	102	80 - 125	6	20		
Cadmium	106	102	85 - 115	4	20		
Chromium	106	102	84 - 121	3	20		
Cobalt	103	101	85 - 120	2	20		
Copper	103	101	85 - 119	2	20		
Lead	101	99	85 - 118	2	20		
Manganese	106	100	85 - 117	3	20		
Nickel	106	103	85 - 119	3	20		
Selenium	108	103	77 - 122	4	20		
Silver	104	101	85 - 115	3	20		
Thallium	103	101	85 - 118	2	20		
Vanadium	104	102	85 - 120	2	20		
Zinc	103	101	83 - 122	2	20		

Client: URS Corporation

Job Number: 280-4578-1

Matrix Spike/
Matrix Spike Duplicate Data Report - Batch: 280-20140

Method: 6020
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-4508-A-10-B MS	Units: ug/L	
Client Matrix:	Water		
Dilution:	1.0		
Date Analyzed:	06/26/2010 0002		
Date Prepared:	06/22/2010 0830		

MSD Lab Sample ID:	280-4508-A-10-C MSD
Client Matrix:	Water
Dilution:	1.0
Date Analyzed:	06/26/2010 0005
Date Prepared:	06/22/2010 0830

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Antimony	ND		40.0	40.0	42.4	41.0
Arsenic	0.44	J	40.0	40.0	43.0	41.8
Barium	2.3		40.0	40.0	45.4	43.7
Beryllium	ND		40.0	40.0	43.7	41.0
Cadmium	ND		40.0	40.0	42.3	40.6
Chromium	ND		40.0	40.0	42.2	40.9
Cobalt	0.26	J	40.0	40.0	41.4	40.5
Copper	0.57	J	40.0	40.0	41.7	40.8
Lead	ND		40.0	40.0	40.4	39.7
Manganese	32		40.0	40.0	74.8	72.4
Nickel	0.36	J	40.0	40.0	42.7	41.6
Selenium	ND		40.0	40.0	43.2	41.3
Silver	ND		40.0	40.0	41.5	40.4
Thallium	ND		40.0	40.0	41.4	40.4
Vanadium	0.71	J	40.0	40.0	42.4	41.6
Zinc	3.4	J	40.0	40.0	44.7	43.8

Client: URS Corporation

Job Number: 280-4578-1

Method Blank - Batch: 280-20069

Method: 7470A
Preparation: 7470A

Lab Sample ID:	MB 280-20069/1-A	Analysis Batch:	280-20496	Instrument ID:	MT_033
Client Matrix:	Water	Prep Batch:	280-20069	Lab File ID:	100622AA.txt
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	06/22/2010 1638			Final Weight/Volume:	10 mL
Date Prepared:	06/22/2010 0950				

Analyte	Result	Qual	MDL	RL
Mercury	ND		0.027	0.20

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-20069

Method: 7470A
Preparation: 7470A

LCS Lab Sample ID:	LCS 280-20069/2-A	Analysis Batch:	280-20496	Instrument ID:	MT_033
Client Matrix:	Water	Prep Batch:	280-20069	Lab File ID:	100622AA.txt
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	06/22/2010 1640			Final Weight/Volume:	10 mL
Date Prepared:	06/22/2010 0950				

LCSD Lab Sample ID:	LCSD 280-20069/3-A	Analysis Batch:	280-20496	Instrument ID:	MT_033
Client Matrix:	Water	Prep Batch:	280-20069	Lab File ID:	100622AA.txt
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	06/22/2010 1642			Final Weight/Volume:	10 mL
Date Prepared:	06/22/2010 0950				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Mercury	98	103	88 - 111	5	10		

Client: URS Corporation

Job Number: 280-4578-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-20069

Method: 7470A
Preparation: 7470A

LCS Lab Sample ID:	LCS 280-20069/2-A	Units:	ug/L	LCSD Lab Sample ID:	LCSD 280-20069/3-A
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Date Analyzed:	06/22/2010 1640			Date Analyzed:	06/22/2010 1642
Date Prepared:	06/22/2010 0950			Date Prepared:	06/22/2010 0950

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Mercury	5.00	5.00	4.89	5.13

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-20069

Method: 7470A
Preparation: 7470A

MS Lab Sample ID:	280-4578-1	Analysis Batch:	280-20496	Instrument ID:	MT_033
Client Matrix:	Water	Prep Batch:	280-20069	Lab File ID:	100622AA.txt
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	06/22/2010 1701			Final Weight/Volume:	10 mL
Date Prepared:	06/22/2010 0950				

MSD Lab Sample ID:	280-4578-1	Analysis Batch:	280-20496	Instrument ID:	MT_033
Client Matrix:	Water	Prep Batch:	280-20069	Lab File ID:	100622AA.txt
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	06/22/2010 1704			Final Weight/Volume:	10 mL
Date Prepared:	06/22/2010 0950				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Mercury	100	96	88 - 111	3	10		

Client: URS Corporation

Job Number: 280-4578-1

Matrix Spike/
Matrix Spike Duplicate Data Report - Batch: 280-20069

Method: 7470A
Preparation: 7470A

MS Lab Sample ID:	280-4578-1	Units: ug/L	MSD Lab Sample ID:	280-4578-1	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Date Analyzed:	06/22/2010 1701		Date Analyzed:	06/22/2010 1704	
Date Prepared:	06/22/2010 0950		Date Prepared:	06/22/2010 0950	

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Mercury	ND	5.00	5.00	4.98	4.82

Client: URS Corporation

Job Number: 280-4578-1

Method Blank - Batch: 280-20183

Method: 7470A
Preparation: 7470A
Dissolved

Lab Sample ID: MB 280-20130/1-E
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/22/2010 1418
Date Prepared: 06/22/2010 0950

Analysis Batch: 280-20496
Prep Batch: 280-20183
Units: ug/L

Instrument ID: MT_033
Lab File ID: 100622AA.txt
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	MDL	RL
Mercury	0.0370	J	0.027	0.20

Lab Control Sample - Batch: 280-20183

Method: 7470A
Preparation: 7470A
Dissolved

Lab Sample ID: LCS 280-20130/2-E
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/22/2010 1420
Date Prepared: 06/22/2010 0950

Analysis Batch: 280-20496
Prep Batch: 280-20183
Units: ug/L

Instrument ID: MT_033
Lab File ID: 100622AA.txt
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	5.00	5.04	101	88 - 111	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-20183

Method: 7470A
Preparation: 7470A
Dissolved

MS Lab Sample ID: 280-4616-A-1-K MS
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/22/2010 1439
Date Prepared: 06/22/2010 0950

Analysis Batch: 280-20496
Prep Batch: 280-20183

Instrument ID: MT_033
Lab File ID: 100622AA.txt
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

MSD Lab Sample ID: 280-4616-A-1-L MSD
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 06/22/2010 1441
Date Prepared: 06/22/2010 0950

Analysis Batch: 280-20496
Prep Batch: 280-20183

Instrument ID: MT_033
Lab File ID: 100622AA.txt
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Mercury	97	96	88 - 111	0	10		

Client: URS Corporation

Job Number: 280-4578-1

Matrix Spike/
Matrix Spike Duplicate Data Report - Batch: 280-20183

Method: 7470A
Preparation: 7470A
Dissolved

MS Lab Sample ID:	280-4616-A-1-K MS	Units: ug/L	
Client Matrix:	Water		
Dilution:	1.0		
Date Analyzed:	06/22/2010 1439		
Date Prepared:	06/22/2010 0950		

MSD Lab Sample ID:	280-4616-A-1-L MSD
Client Matrix:	Water
Dilution:	1.0
Date Analyzed:	06/22/2010 1441
Date Prepared:	06/22/2010 0950

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Mercury	0.028	J	5.00	5.00	4.86	4.85

Client: URS Corporation

Job Number: 280-4578-1

Laboratory Chronicle

Lab ID: 280-4578-1 **Client ID:** RBSW01

Sample Date/Time: 06/15/2010 14:30 Received Date/Time: 06/17/2010 15:05

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	280-4578-A-1-A		280-20476	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4578-A-1-A		280-20476	280-19910	06/23/2010 16:09	1	TAL DEN	LT
P:3010A	280-4578-A-1-A		280-20652	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4578-A-1-A		280-20652	280-19910	06/24/2010 20:20	1	TAL DEN	JKH
P:3005A	280-4578-A-1-H		280-20639	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	280-4578-A-1-H		280-20639	280-20144	06/24/2010 22:42	1	TAL DEN	DW
P:3010A	280-4578-A-1-A		280-20949	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4578-A-1-A		280-20949	280-19910	06/25/2010 20:07	1	TAL DEN	JKH
P:3005A	280-4578-A-1-H ^5		280-21026	280-20144	06/22/2010 08:30	5	TAL DEN	JW
A:6010B	280-4578-A-1-H ^5		280-21026	280-20144	06/28/2010 16:53	5	TAL DEN	DW
P:3005A	280-4578-A-1-G	DL	280-20904	280-20140	06/22/2010 08:30	20	TAL DEN	JW
A:6020	280-4578-A-1-G	DL	280-20904	280-20140	06/26/2010 00:16	20	TAL DEN	TEL
P:3005A	280-4578-A-1-G		280-20904	280-20140	06/22/2010 08:30	2	TAL DEN	JW
A:6020	280-4578-A-1-G		280-20904	280-20140	06/26/2010 00:18	2	TAL DEN	TEL
P:3005A	280-4578-A-1-E		280-21101	280-20103	06/22/2010 13:30	5	TAL DEN	CGG
A:6020	280-4578-A-1-E		280-21101	280-20103	06/29/2010 05:10	5	TAL DEN	TEL
P:7470A	280-4578-A-1-I		280-20496	280-20183	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	280-4578-A-1-I		280-20496	280-20183	06/22/2010 14:23	1	TAL DEN	KS
P:7470A	280-4578-A-1-B		280-20496	280-20069	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	280-4578-A-1-B		280-20496	280-20069	06/22/2010 16:59	1	TAL DEN	KS

Lab ID: 280-4578-1 MS **Client ID:** RBSW01

Sample Date/Time: 06/15/2010 14:30 Received Date/Time: 06/17/2010 15:05

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:7470A	280-4578-A-1-C MS		280-20496	280-20069	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	280-4578-A-1-C MS		280-20496	280-20069	06/22/2010 17:01	1	TAL DEN	KS

Lab ID: 280-4578-1 MSD **Client ID:** RBSW01

Sample Date/Time: 06/15/2010 14:30 Received Date/Time: 06/17/2010 15:05

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:7470A	280-4578-A-1-D MSD		280-20496	280-20069	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	280-4578-A-1-D MSD		280-20496	280-20069	06/22/2010 17:04	1	TAL DEN	KS

Client: URS Corporation

Job Number: 280-4578-1

Laboratory Chronicle

Lab ID: 280-4578-2 **Client ID:** MMSW03

Sample Date/Time: 06/15/2010 11:45 Received Date/Time: 06/17/2010 15:05

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	280-4578-A-2-A		280-20476	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4578-A-2-A		280-20476	280-19910	06/23/2010 16:11	1	TAL DEN	LT
P:3010A	280-4578-A-2-A		280-20652	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4578-A-2-A		280-20652	280-19910	06/24/2010 20:23	1	TAL DEN	JKH
P:3005A	280-4578-A-2-H		280-20639	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	280-4578-A-2-H		280-20639	280-20144	06/24/2010 22:44	1	TAL DEN	DW
P:3010A	280-4578-A-2-A		280-20949	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4578-A-2-A		280-20949	280-19910	06/25/2010 20:10	1	TAL DEN	JKH
P:3005A	280-4578-A-2-H		280-21026	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	280-4578-A-2-H		280-21026	280-20144	06/28/2010 16:55	1	TAL DEN	DW
P:3005A	280-4578-A-2-H ^2		280-21165	280-20144	06/22/2010 08:30	2	TAL DEN	JW
A:6010B	280-4578-A-2-H ^2		280-21165	280-20144	06/29/2010 15:25	2	TAL DEN	DW
P:3005A	280-4578-A-2-G	DL	280-20904	280-20140	06/22/2010 08:30	20	TAL DEN	JW
A:6020	280-4578-A-2-G	DL	280-20904	280-20140	06/26/2010 00:21	20	TAL DEN	TEL
P:3005A	280-4578-A-2-G		280-20904	280-20140	06/22/2010 08:30	2	TAL DEN	JW
A:6020	280-4578-A-2-G		280-20904	280-20140	06/26/2010 00:25	2	TAL DEN	TEL
P:3005A	280-4578-A-2-C		280-21101	280-20103	06/22/2010 13:30	1	TAL DEN	CGG
A:6020	280-4578-A-2-C		280-21101	280-20103	06/29/2010 05:13	1	TAL DEN	TEL
P:3005A	280-4578-A-2-C	DL	280-21380	280-20103	06/22/2010 13:30	10	TAL DEN	CGG
A:6020	280-4578-A-2-C	DL	280-21380	280-20103	07/01/2010 04:31	10	TAL DEN	TEL
P:7470A	280-4578-A-2-I		280-20496	280-20183	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	280-4578-A-2-I		280-20496	280-20183	06/22/2010 14:25	1	TAL DEN	KS
P:7470A	280-4578-A-2-B		280-20496	280-20069	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	280-4578-A-2-B		280-20496	280-20069	06/22/2010 17:06	1	TAL DEN	KS

Lab ID: 280-4578-2 MS **Client ID:** MMSW03

Sample Date/Time: 06/15/2010 11:45 Received Date/Time: 06/17/2010 15:05

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3005A	280-4578-A-2-D MS		280-21101	280-20103	06/22/2010 13:30	1	TAL DEN	CGG
A:6020	280-4578-A-2-D MS		280-21101	280-20103	06/29/2010 05:21	1	TAL DEN	TEL
P:3005A	280-4578-A-2-D MS	DL	280-21380	280-20103	06/22/2010 13:30	10	TAL DEN	CGG
A:6020	280-4578-A-2-D MS	DL	280-21380	280-20103	07/01/2010 04:39	10	TAL DEN	TEL

Lab ID: 280-4578-2 MSD **Client ID:** MMSW03

Sample Date/Time: 06/15/2010 11:45 Received Date/Time: 06/17/2010 15:05

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3005A	280-4578-A-2-E MSD		280-21101	280-20103	06/22/2010 13:30	1	TAL DEN	CGG
A:6020	280-4578-A-2-E MSD		280-21101	280-20103	06/29/2010 05:24	1	TAL DEN	TEL
P:3005A	280-4578-A-2-E MSD	DL	280-21380	280-20103	06/22/2010 13:30	10	TAL DEN	CGG
A:6020	280-4578-A-2-E MSD	DL	280-21380	280-20103	07/01/2010 04:42	10	TAL DEN	TEL

Client: URS Corporation

Job Number: 280-4578-1

Laboratory Chronicle

Lab ID: 280-4578-3 **Client ID:** MMSW02

Sample Date/Time: 06/15/2010 11:30 Received Date/Time: 06/17/2010 15:05

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	280-4578-A-3-A		280-20476	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4578-A-3-A		280-20476	280-19910	06/23/2010 16:14	1	TAL DEN	LT
P:3010A	280-4578-A-3-A		280-20652	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4578-A-3-A		280-20652	280-19910	06/24/2010 20:25	1	TAL DEN	JKH
P:3005A	280-4578-A-3-F		280-20639	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	280-4578-A-3-F		280-20639	280-20144	06/24/2010 22:47	1	TAL DEN	DW
P:3010A	280-4578-A-3-A		280-20949	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4578-A-3-A		280-20949	280-19910	06/25/2010 20:13	1	TAL DEN	JKH
P:3005A	280-4578-A-3-F		280-21026	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	280-4578-A-3-F		280-21026	280-20144	06/28/2010 16:58	1	TAL DEN	DW
P:3005A	280-4578-A-3-F ^2		280-21165	280-20144	06/22/2010 08:30	2	TAL DEN	JW
A:6010B	280-4578-A-3-F ^2		280-21165	280-20144	06/29/2010 15:27	2	TAL DEN	DW
P:3005A	280-4578-A-3-E	DL	280-20904	280-20140	06/22/2010 08:30	20	TAL DEN	JW
A:6020	280-4578-A-3-E	DL	280-20904	280-20140	06/26/2010 00:27	20	TAL DEN	TEL
P:3005A	280-4578-A-3-E		280-20904	280-20140	06/22/2010 08:30	2	TAL DEN	JW
A:6020	280-4578-A-3-E		280-20904	280-20140	06/26/2010 00:30	2	TAL DEN	TEL
P:3005A	280-4578-A-3-C		280-21101	280-20103	06/22/2010 13:30	1	TAL DEN	CGG
A:6020	280-4578-A-3-C		280-21101	280-20103	06/29/2010 05:27	1	TAL DEN	TEL
P:3005A	280-4578-A-3-C	DL	280-21380	280-20103	06/22/2010 13:30	10	TAL DEN	CGG
A:6020	280-4578-A-3-C	DL	280-21380	280-20103	07/01/2010 04:44	10	TAL DEN	TEL
P:7470A	280-4578-A-3-G		280-20496	280-20183	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	280-4578-A-3-G		280-20496	280-20183	06/22/2010 14:32	1	TAL DEN	KS
P:7470A	280-4578-A-3-B		280-20496	280-20069	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	280-4578-A-3-B		280-20496	280-20069	06/22/2010 17:13	1	TAL DEN	KS

Client: URS Corporation

Job Number: 280-4578-1

Laboratory Chronicle

Lab ID: 280-4578-4 **Client ID:** MMSW01

Sample Date/Time: 06/15/2010 11:15 Received Date/Time: 06/17/2010 15:05

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	280-4578-A-4-A		280-20476	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4578-A-4-A		280-20476	280-19910	06/23/2010 16:16	1	TAL DEN	LT
P:3010A	280-4578-A-4-A		280-20652	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4578-A-4-A		280-20652	280-19910	06/24/2010 20:28	1	TAL DEN	JKH
P:3005A	280-4578-A-4-F		280-20639	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	280-4578-A-4-F		280-20639	280-20144	06/24/2010 22:49	1	TAL DEN	DW
P:3010A	280-4578-A-4-A		280-20949	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4578-A-4-A		280-20949	280-19910	06/25/2010 20:15	1	TAL DEN	JKH
P:3005A	280-4578-A-4-F		280-21026	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	280-4578-A-4-F		280-21026	280-20144	06/28/2010 17:00	1	TAL DEN	DW
P:3005A	280-4578-A-4-E	DL	280-20904	280-20140	06/22/2010 08:30	20	TAL DEN	JW
A:6020	280-4578-A-4-E	DL	280-20904	280-20140	06/26/2010 00:33	20	TAL DEN	TEL
P:3005A	280-4578-A-4-E		280-20904	280-20140	06/22/2010 08:30	2	TAL DEN	JW
A:6020	280-4578-A-4-E		280-20904	280-20140	06/26/2010 00:41	2	TAL DEN	TEL
P:3005A	280-4578-A-4-C		280-21101	280-20103	06/22/2010 13:30	1	TAL DEN	CGG
A:6020	280-4578-A-4-C		280-21101	280-20103	06/29/2010 05:29	1	TAL DEN	TEL
P:3005A	280-4578-A-4-C	DL	280-21380	280-20103	06/22/2010 13:30	10	TAL DEN	CGG
A:6020	280-4578-A-4-C	DL	280-21380	280-20103	07/01/2010 04:47	10	TAL DEN	TEL
P:7470A	280-4578-A-4-G		280-20496	280-20183	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	280-4578-A-4-G		280-20496	280-20183	06/22/2010 14:34	1	TAL DEN	KS
P:7470A	280-4578-A-4-B		280-20496	280-20069	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	280-4578-A-4-B		280-20496	280-20069	06/22/2010 17:15	1	TAL DEN	KS

Lab ID: MB **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	MB 280-19910/1-A		280-20476	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	MB 280-19910/1-A		280-20476	280-19910	06/23/2010 14:46	1	TAL DEN	LT
P:3010A	MB 280-19910/1-A		280-20652	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	MB 280-19910/1-A		280-20652	280-19910	06/24/2010 19:32	1	TAL DEN	JKH
P:3005A	MB 280-20130/1-C		280-20639	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	MB 280-20130/1-C		280-20639	280-20144	06/24/2010 21:52	1	TAL DEN	DW
P:3005A	MB 280-20130/1-C		280-21026	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	MB 280-20130/1-C		280-21026	280-20144	06/28/2010 16:07	1	TAL DEN	DW
P:3005A	MB 280-20130/1-B		280-20678	280-20140	06/22/2010 08:30	1	TAL DEN	JW
A:6020	MB 280-20130/1-B		280-20678	280-20140	06/25/2010 08:22	1	TAL DEN	TEL
P:3005A	MB 280-20103/1-A		280-21101	280-20103	06/22/2010 13:30	1	TAL DEN	CGG
A:6020	MB 280-20103/1-A		280-21101	280-20103	06/29/2010 05:05	1	TAL DEN	TEL
P:7470A	MB 280-20130/1-E		280-20496	280-20183	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	MB 280-20130/1-E		280-20496	280-20183	06/22/2010 14:18	1	TAL DEN	KS
P:7470A	MB 280-20069/1-A		280-20496	280-20069	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	MB 280-20069/1-A		280-20496	280-20069	06/22/2010 16:38	1	TAL DEN	KS

Client: URS Corporation

Job Number: 280-4578-1

Laboratory Chronicle

Lab ID: LCS **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	LCS 280-19910/2-A		280-20476	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	LCS 280-19910/2-A		280-20476	280-19910	06/23/2010 14:48	1	TAL DEN	LT
P:3010A	LCS 280-19910/2-A		280-20652	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	LCS 280-19910/2-A		280-20652	280-19910	06/24/2010 19:34	1	TAL DEN	JKH
P:3005A	LCS 280-20130/2-C		280-20639	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	LCS 280-20130/2-C		280-20639	280-20144	06/24/2010 21:55	1	TAL DEN	DW
P:3005A	LCS 280-20130/2-C		280-21026	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	LCS 280-20130/2-C		280-21026	280-20144	06/28/2010 16:09	1	TAL DEN	DW
P:3005A	LCS 280-20130/2-B		280-20678	280-20140	06/22/2010 08:30	1	TAL DEN	JW
A:6020	LCS 280-20130/2-B		280-20678	280-20140	06/25/2010 08:24	1	TAL DEN	TEL
P:3005A	LCS 280-20103/2-A		280-21101	280-20103	06/22/2010 13:30	1	TAL DEN	CGG
A:6020	LCS 280-20103/2-A		280-21101	280-20103	06/29/2010 05:07	1	TAL DEN	TEL
P:7470A	LCS 280-20130/2-E		280-20496	280-20183	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	LCS 280-20130/2-E		280-20496	280-20183	06/22/2010 14:20	1	TAL DEN	KS
P:7470A	LCS 280-20069/2-A		280-20496	280-20069	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	LCS 280-20069/2-A		280-20496	280-20069	06/22/2010 16:40	1	TAL DEN	KS

Lab ID: LCSD **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:7470A	LCSD 280-20069/3-A		280-20496	280-20069	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	LCSD 280-20069/3-A		280-20496	280-20069	06/22/2010 16:42	1	TAL DEN	KS

Lab ID: MS **Client ID:** N/A

Sample Date/Time: 06/16/2010 09:16 Received Date/Time: 06/17/2010 12:42

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	280-4567-A-2-B MS		280-20476	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4567-A-2-B MS		280-20476	280-19910	06/23/2010 14:59	1	TAL DEN	LT
P:3010A	280-4567-A-2-B MS		280-20652	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4567-A-2-B MS		280-20652	280-19910	06/24/2010 19:42	1	TAL DEN	JKH
P:3005A	280-4508-A-10-E MS		280-20639	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	280-4508-A-10-E MS		280-20639	280-20144	06/24/2010 22:35	1	TAL DEN	DW
P:3005A	280-4508-A-10-E MS		280-21026	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	280-4508-A-10-E MS		280-21026	280-20144	06/28/2010 16:46	1	TAL DEN	DW
P:3005A	280-4508-A-10-B MS		280-20904	280-20140	06/22/2010 08:30	1	TAL DEN	JW
A:6020	280-4508-A-10-B MS		280-20904	280-20140	06/26/2010 00:02	1	TAL DEN	TEL
P:7470A	280-4616-A-1-K MS		280-20496	280-20183	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	280-4616-A-1-K MS		280-20496	280-20183	06/22/2010 14:39	1	TAL DEN	KS

Client: URS Corporation

Job Number: 280-4578-1

Laboratory Chronicle

Lab ID: MSD **Client ID:** N/A

Sample Date/Time: 06/16/2010 09:16 Received Date/Time: 06/17/2010 12:42

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	280-4567-A-2-C MSD		280-20476	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4567-A-2-C MSD		280-20476	280-19910	06/23/2010 15:02	1	TAL DEN	LT
P:3010A	280-4567-A-2-C MSD		280-20652	280-19910	06/21/2010 15:00	1	TAL DEN	CGG
A:6010B	280-4567-A-2-C MSD		280-20652	280-19910	06/24/2010 19:46	1	TAL DEN	JKH
P:3005A	280-4508-A-10-F MSD		280-20639	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	280-4508-A-10-F MSD		280-20639	280-20144	06/24/2010 22:37	1	TAL DEN	DW
P:3005A	280-4508-A-10-F MSD		280-21026	280-20144	06/22/2010 08:30	1	TAL DEN	JW
A:6010B	280-4508-A-10-F MSD		280-21026	280-20144	06/28/2010 16:49	1	TAL DEN	DW
P:3005A	280-4508-A-10-C MSD		280-20904	280-20140	06/22/2010 08:30	1	TAL DEN	JW
A:6020	280-4508-A-10-C MSD		280-20904	280-20140	06/26/2010 00:05	1	TAL DEN	TEL
P:7470A	280-4616-A-1-L MSD		280-20496	280-20183	06/22/2010 09:50	1	TAL DEN	KS
A:7470A	280-4616-A-1-L MSD		280-20496	280-20183	06/22/2010 14:41	1	TAL DEN	KS

Lab References:
TAL DEN = TestAmerica Denver

APPENDIX C

Borehole Logs

URS Operating Services

SOIL BORING LOG / MONITORING WELL CONSTRUCTION DIAGRAM

Boring / Well Number:	TDD Name/TDD Number:	Site Location:
RBLIN02E50	**Red and Bonita Mine 1008-01**	**Silverton, CO**

Boring Depth (ft) X Diameter (in):	**32.5 x 4**	Drilling Method:	**ODEX/DTHH**
Well Contractor Name:	**UOS START**	Logged by:	**J. Gilbert**

Ground Surface Relative Elevation (ft)	Top of Casing Elevation (ft)	Lat. 37.847236	Northing
N/A	**N/A**	Long. -107.64382	Easting

Date Started:	Date Completed:	Additional Comments:
09/30/10	**09/30/10**	

Lithologic Description	USCS	Graphic Log	Depth (feet b.g.s.)	Well Construction Details	Sample Type *	Sample	Arsenic/ Lead by XRF (ppm)	Rad Meter (mR/hr)
Fill, silt with cobbles, brown, angular, poorly sorted	GP GM		0					
Silty gravel with cobbles, tan/brown, angular, poorly sorted	GP GM		5					
Gravel, tan/brown, angular, poorly sorted, rhyolite clasts	GP		10 15 20					
Silty sand with gravel, brown, angular, poorly sorted	GM		25 30					

* SS = split spoon, HS = hollow stem auger, MC = Geoprobe macrocore, CT = cuttings, CC = continuous core

Observations	Date:					
Static Water Level (ft. BTOC)	Level:					
Static Water Elev. (ft. ASL)	Level:					

URS Operating Services

SOIL BORING LOG / MONITORING WELL CONSTRUCTION DIAGRAM

Boring / Well Number: **RBLIN02E50 adit**	TDD Name/TDD Number: **Red and Bonita Mine 1008-01**	Site Location: **Silverton, CO**
Boring Depth (ft) X Diameter (in): **36.0 x 4**		Drilling Method: **ODEX/DTHH**
Well Contractor Name: **UOS START**		Logged by: **J. Gilbert**
Ground Surface Relative Elevation (ft) **N/A**	Top of Casing Elevation (ft) **N/A**	Lat. 37.847236 Long. -107.64382 Northing Easting
Date Started: **10/01/10**	Date Completed: **10/01/10**	Additional Comments:

Lithologic Description	USCS	Graphic Log	Depth (feet b.g.s.)	Well Construction Details	Sample Type *	Sample	Arsenic/ Lead by XRF (ppm)	Rad Meter (mR/hr)
Fill, silty gravel with cobbles, tan/brown, angular, poorly sorted	GP		0					
Silty gravel with cobbles, tan/brown, angular, poorly sorted	GP		5					
			10					
Silty sand with gravel, tan/brown, angular, poorly sorted	GP		15					
Coarse sand with gravel, tan/brown, angular, poorly sorted	SP		20					
			25					
			30					
			35					
Red and Bonita Mine Adit								

* SS = split spoon, HS = hollow stem auger, MC = Geoprobe macrocore, CT = cuttings, CC = continuous core

Observations	Date:					
Static Water Level (ft. BTOC)	Level:					
Static Water Elev. (ft. ASL)	Level:					

URS Operating Services

SOIL BORING LOG / MONITORING WELL CONSTRUCTION DIAGRAM

Boring / Well Number: **RBLN01E48**	TDD Name/TDD Number: **Red and Bonita Mine 1008-01**	Site Location: **Silverton, CO**	
Boring Depth (ft) X Diameter (in): **37.5 x 4**		Drilling Method: **ODEX/DTHH**	
Well Contractor Name: **UOS START**		Logged by: **J. Gilbert**	
Ground Surface Relative Elevation (ft) **N/A**	Top of Casing Elevation (ft) **N/A**	Lat. 37.847236 Long. -107.64382	Northing Easting
Date Started: **09/29/10**	Date Completed: **09/29/10**	Additional Comments:	

Lithologic Description	USCS	Graphic Log	Depth (feet b.g.s.)	Well Construction Details	Sample Type*	Sample	Arsenic/ Lead by XRF (ppm)	Rad Meter (mR/hr)
Fill, sandy gravel, angular, poorly sorted	GP GM		0 5 10					
Talus, brown, coarse sand to cobbles, angular, poorly sorted	GP							
Gravel, tan/brown, coarse sand to cobbles, angular, poorly sorted, water encountered at 19/5 feet	GP		15 20 25 30 35					

* SS = split spoon, HS = hollow stem auger, MC = Geoprobe macrocore, CT = cuttings, CC = continuous core

Observations	Date:					
Static Water Level (ft. BTOC)	Level:					
Static Water Elev. (ft. ASL)	Level:					

URS Operating Services

SOIL BORING LOG / MONITORING WELL CONSTRUCTION DIAGRAM

Boring / Well Number:	TDD Name/TDD Number:	Site Location:
RBLN01E68	**Red and Bonita Mine 1008-01**	**Silverton, CO**

Boring Depth (ft) X Diameter (in):	Drilling Method:
30.0 x 4	**ODEX/DTHH**

Well Contractor Name:	Logged by:
UOS START	**J. Gilbert**

Ground Surface Relative Elevation (ft)	Top of Casing Elevation (ft)	Lat. 37.847236	Northing
N/A	**N/A**	Long. -107.64382	Easting

Date Started:	Date Completed:	Additional Comments:
09/29/10	**09/29/10**	

Lithologic Description	USCS	Graphic Log	Depth (feet b.g.s.)	Well Construction Details	Sample Type*	Sample	Arsenic/ Lead by XRF (ppm)	Rad Meter (mR/hr)
Fill, sandy gravel, angular, poorly sorted	GP GM		0					
			5					
Silty gravel with cobbles, tan, poorly sorted, sub angular, dry	GP GM		10					
			15					
			20					
			25					
			30					

* SS = split spoon, HS = hollow stem auger, MC = Geoprobe macrocore, CT = cuttings, CC = continuous core

Observations	Date:					
Static Water Level (ft. BTOC)	Level:					
Static Water Elev. (ft. ASL)	Level:					

URS Operating Services

SOIL BORING LOG / MONITORING WELL CONSTRUCTION DIAGRAM

Boring / Well Number:	TDD Name/TDD Number:	Site Location:
RBMW01	**Red and Bonita Mine 1008-01**	**Silverton, CO**

Boring Depth (ft) X Diameter (in):	Drilling Method:
35.0 x 4	**ODEX/DTHH**

Well Contractor Name:	Logged by:
UOS START	**J. Gilbert**

Ground Surface Relative Elevation (ft)	Top of Casing Elevation (ft)	Lat. / Long.	Northing / Easting
N/A	**N/A**	Lat. 37.847236 Long. -107.64382	Northing Easting

Date Started:	Date Completed:	Additional Comments:
09/30/10	**09/30/10**	

Lithologic Description	USCS	Graphic Log	Depth (feet b.g.s.)	Well Construction Details	Sample Type *	Sample	Arsenic/ Lead by XRF (ppm)	Rad Meter (mR/hr)
Fill, sandy gravel with cobbles, tan/brown, angular, poorly sorted	GP GM		0	Cement Grouted Riser				
			5					
Pea-size gravel with cobbles, tan/brown, angular, poorly sorted	GP		10					
			15	Bentonite Seal				
			20	K-Packer Screen				
			25					
Red and Bonita Mine Adit-Void space			30	Adit-30 feet				
			35					

* SS = split spoon, HS = hollow stem auger, MC = Geoprobe macrocore, CT = cuttings, CC = continuous core

Observations	Date:					
Static Water Level (ft. BTOC)	Level:					
Static Water Elev. (ft. ASL)	Level:					

APPENDIX D

Electrical Resistivity Imaging

1.1 ELECTRICAL RESISTIVITY IMAGING

As part of the effort to explore for the location of the mine adit, electrical resistivity imaging (ERI) was used. This Appendix describes the electrical resistivity method in general, and discusses specifics of the second successful ERI survey performed at the site by URS. As summarized in the main report, the initial resistivity survey conducted with the support and equipment of the BLM and USGS had equipment malfunctioning issues, and the survey had to be truncated early due to these problems.

The resistivity method provides a rapid and cost-effective means of measuring electrical resistivities of subsurface materials. Various subsurface materials have different electrical properties and electrical resistivities. Measuring the resistivities can thus provide information on the nature of the subsurface materials.

The method relies on the principle that different subsurface materials resist the flow of electrical current to varying degrees. The resistance to electrical current for a material is measured as the ratio of electrical potential, or voltage (v), due to an applied current (i). Resistivity (ρ) is the ratio of resistance over the cross-sectional area of a material that the current passes through. Electrical resistivity, typically measured in ohm-meters ($\Omega \bullet m$), is also simply the inverse of electrical conductivity.

In general, soil and rock act as electrical insulators and are highly resistive. The flow of electrical current is primarily through moisture-filled pore spaces. The observed resistivity is controlled by the soil and rock composition, porosity and permeability of soil and rock, the amount of water within the pore spaces, and the concentration of dissolved solids within the pore water. Therefore, measurement of resistivity can yield useful information that can address the stratigraphy, structure, and composition of the subsurface.

Increasing water content, increasing salinity of groundwater, increasing clay content, and decreasing grain size all tend to reduce the observed resistivity. If groundwater is present to fill void spaces, increasing porosity in soil and bedrock materials or increasing the degree of weathering and number of fractures in bedrock materials will generally lower the resistivity. Resistivity typically increases with increasing degree of compaction or lithification, so at many sites bedrock will be more resistive than overlying soil materials, unless the bedrock is composed of fine-grained clay materials. Resistivity also increases with an increase in air-filled void space, and can thus be useful in locating a cavity or tunnel.

Table D-1 provides a list of typical resistivities for various soil and other near-surface materials, and Table D-2 lists general resistivity (and conductivity) ranges for common rocks and minerals. It is important to note that general rock classifications can have significant overlap their resistivity values.

However, at a given site, there are resistivity variations between rock types that are usually observed. Typically, coarser-grained materials have a higher resistivity than finer-grained materials. Gravel will have a higher resistivity than sand, and sand will have higher resistivity than silt, which will have a higher resistivity than clay. The degree of fluid content or saturation reduces the resistivity, particularly if the fluid has dissolved ions from minerals or chemical constituents.

Table D-1
TYPICAL RANGES OF RESISTIVITIES
OF VARIOUS NEAR-SURFACE MATERIALS

Materials	Resistivity Ohm-Meters
Wet to moist clayey soil and wet clay	1s to 10s
Wet to moist silty soil and silty clay	Low 10s
Wet to moist silty and sandy soils	10s to 1000s
Sand and gravel with layers of silt	Low 1000s
Coarse dry sand and gravel deposits	High 1000s
Well-fractured to slightly fractures rock with moist-soil-filled cracks	100s
Slightly fractured rock with dry, soil filled cracks	Low 1000s
Massively bedded rock	High 1000s

Taken from "Exploration Geophysics of the Shallow Subsurface" by H. Robert Burger, 1992

Table D-2
RESISTIVITIES AND CONDUCTIVITIES OF SOME
COMMON ROCKS AND MINERALS

Material	Resistivity ($\Omega \bullet m$)	Conductivity (Siemen/meter)
Igneous and Metamorphic Rocks		
Granite	$5x10^3 - 10^6$	$10^{-6} - 2x10^{-4}$
Basalt	$10^3 - 10^6$	$10^{-6} - 10^{-3}$
Slate	$6x10^2 - 4x10^7$	$2.5x10^{-8} - 1.7x10^{-3}$
Marble	$10^2 - 2.5x10^8$	$4x10^{-9} - 10^{-2}$
Quartzite	$10^2 - 2x10^8$	$5x10^{-9} - 10^{-2}$
Sedimentary Rocks		
Sandstone	$8 - 4x10^3$	$2.5x10^{-4} - 0.125$
Shale	$20 - 2x10^3$	$5x10^{-4} - 0.05$
Limestone	$50 - 4x10^6$	$2.5x10^{-4} - 0.02$

Table D-2
RESISTIVITIES AND CONDUCTIVITIES OF SOME COMMON ROCKS AND MINERALS

Material	Resistivity (Ω •m)	Conductivity (Siemen/meter)
Dolomite	$350 - 5x10^3$	0.2 – 2.9
Soils and Waters		
Clay	1 – 100	0.01 – 1
Alluvium	10 – 800	$1.25x10^{-3} - 0.1$
Groundwater (fresh)	10 – 100	0.01 – 0.1
Sea water	0.2	5

Modified after Loke, 1999

Resistivity values for a specific investigation area can have a much larger range compared to other physical properties quantified by other geophysical methods, and can vary by factors of 10 to 100, or more. In comparison, density values used by gravity surveys usually change by less than a factor of 2, and seismic velocities usually do not change by more than a factor of 5 to 8. In some cases, therefore, this fact allows resistivity and other electrical or electromagnetic based methods to detect fairly minor geologic variations.

A direct current (DC) electrical resistivity survey is conducted by producing a simple electrical circuit in the subsurface by placing two pairs of electrodes in the ground and connecting them to a power source to create an electric circuit. An electric current is produced through two of the electrodes, and the resulting voltage is measured at various locations along the ground surface between a second pair of electrodes. An apparent subsurface resistivity can be calculated from the separation and geometry of the electrode positions, the applied current, and the measured voltage given by Ohm's Law.

$$\rho a = k\, v / i$$

Where:

ρa = apparent resistivity

k = geometric factor dependent on the electrode geometry

v = voltage

i = the current.

There are several types of electrode arrays that can be used to collect electrical resistivity data. The array type used in this investigation was the dipole-dipole array, which has been successfully utilized to identify sudden lateral resistivity variations due to voids, tunnels, or rubble zones. In the dipole-dipole configuration, the current electrode pair and the potential electrode pair are located on opposite ends of the mid-point of the measurement location, and the spacing between the current electrodes is equal to the spacing between the potential electrodes for each resistivity measurement.

Using the dipole-dipole electrode array configuration, increasing the spacing between the respective pairs of electrodes results in greater subsurface current penetration, although the actual penetration achieved is dependent on the subsurface resistivities encountered. The result of this relationship between spacing and penetration is that, at greater electrode spacings, a larger cross-sectional area of earth is measured or averaged to get one reading. The resolution of this method is, therefore, inversely proportional to the electrode spacing and penetration depth.

The measured resistivity value is not the true resistivity of the subsurface, but an "apparent" value, which is the resistivity, that homogeneous ground would exhibit assuming the same resistance and electrode geometry. The relationship between the "apparent" resistivity and the "true" subsurface resistivity is a complex relationship. To determine the true subsurface resistivity, an inversion of the measured apparent resistivity values using a computer algorithm is performed on the measured resistivity data.

1.2 ELECTRICAL RESISTIVITY DATA COLLECTION

Data collection for the electrical resistivity imaging survey at the site was completed between September 21 and September 27, 2010. Resistivity line locations were selected to run generally north-south, and perpendicular to the suspected orientation of the adit tunnel. The lines were conducted over an area that had been cleared and an access road created for the drill pad with a dozer. Electrical resistivity imaging data were collected along two transect lines, designated Line RBLIN1 and Line RBLIN2, respectively, at the locations shown on Figure 4 of the main report.

The geophysical equipment used for this survey consisted of a multi-electrode resistivity system manufactured by Advanced Geosciences, Inc. (AGI). The system consists of an AGI SuperSting R8 resistivity meter, a series of electrode strings consisting of 14 electrodes per string, and two 12-volt deep cycle batteries for power capability. The electrode strings were oriented linearly using 112 and 84 electrodes, respectively, for the two lines, and placed at a uniform electrode spacing of 3 feet. The resistivity line lengths were approximately 333 feet and 249 feet, respectively.

The first step in setting up the multi-electrode resistivity array involved hammering stainless steel stakes approximately 5 to 8 inches into the ground using a small sledgehammer. The stakes were placed along a uniform electrode interval from the beginning to the end of each resistivity line. The stakes provide the required electrical coupling between the electrode and the ground. The next step involved laying the electrode cables down the line and securely connecting the electrodes to the stakes using rubber bands or metal springs. The electrode strings were then connected to each other and to the Swift switch box, and all connections were made with the Sting.

Diagnostic testing of the system was conducted to verify proper configuration of the various instrument components and adequate contact of the electrodes with the ground surface. A desire for good data collection is to maximize the coupling between the electrode stake and the ground. The degree that the surface electrodes can couple with the ground is indicated by the contact resistance between the two. Data quality is, therefore, enhanced by minimizing the contact resistance between the ground and the electrode stake. A goal is to have the contact resistance below 2,000 Ω and preferably below 1,000 Ω. Unfortunately, with the excavated drill pad and near-surface materials composed of gravel and small boulders, the contact resistance between the ground and the steel stakes was very high, and well above desired levels. This produced some noise in the data because inducing the electrical current into the ground was inhibited to some degree by the high-contact resistance. Significant efforts were made to minimize the resistance, by moving the electrode, using salt water around the base of the electrode stake, and importing clay materials from nearby and surrounding the electrode base with saturated clay and salt water. Despite these measures, the contact resistance values were higher than optimum.

Upon completion of the diagnostic testing, the instrument was programmed with the proper data collection parameters, and automated data collection was initiated. Once data acquisition parameters are input to the SuperSting menu system, the controller automatically cycles through the various transmitter and receiver electrode combinations to produce an apparent resistivity pseudosection.

1.3 ELECTRICAL RESISTIVITY DATA PROCESSING

Upon completion of the data collection, the stored data file was transferred from the Sting resistivity meter to a personal computer (PC) through a data link using AGI's Administrator computer software program. This software allows for conversion of the acquired data into a format compatible with standard geophysical modeling programs. Data processing, plotting, and modeling was completed using AGI's EarthImager computer software.

To analyze the resistivity data, a means of plotting the data is helpful. Traditionally for resistivity profile data, particularly dipole-dipole data, a pseudosection contouring method is used. This method allows lateral resistivity variations to be distinguished from vertical variations. Mechanically, a 2-d plot is made where the lateral position of the apparent resistivity value is plotted in relationship to where the electrodes were placed when that particular measurement was made. The distance of the plotted apparent value from the measurement line is related to the separation between the electrodes when the measurement was made. The horizontal location of the point is placed at the mid-point between the electrodes used to make the measurement. The points are traditionally plotted with a 45° angle to the horizontal. It is important to emphasize that this is merely an arbitrary plotting convention, and it does not imply that the true depth of investigation is given by the point of intersection of the two 45° angle lines. Although a pseudodepth is inferred in the way a pseudosection is plotted, it is not a true depth. The pseudosection plots are contoured, and resulting anomalous patterns can be recognized. The pseudosection gives a very general and approximate picture of the subsurface resistivity distribution. It is a useful and traditional means to present the measured apparent resistivity values in a pictorial form, and used as a starting point for further interpretation.

The EarthImager program utilizes an inversion process to model the apparent resistivities at designated electrode spacings and lateral locations to produce modeled "true" resistivities at specific depths and locations along the profile line. The output of the model is a 2-d contour map of the subsurface resistivities plotted versus depth. Note that final model depths achieved are a function of the line length used during data collection.

It must be noted that the inversion of resistivity data can suffer from the problem of non-uniqueness. That is, for the same measured data set of resistivity values, there are a number of models that could lead to the same calculated apparent resistivity values. This is because the final model calculated from an apparent resistivity pseudosection is dependent on the product of the layer resistivity and the layer thickness. Theoretically, a given calculated section can be obtained by a large number of resistivity and layer thickness combinations. To narrow down the range of possible solutions, some assumptions are made about the subsurface by varying data processing parameters within the inversion routine. These assumptions consider, where possible, the geologic information that is relevant to the site. In practice, with the large number of data points involved in a resistivity section, which typically exceeds several thousand datapoints, convergence to a valid model usually occurs fairly quickly.

1.4 ELECTRICAL RESISTIVITY PROFILING RESULTS

The results of the electrical resistivity imaging surveys at the two transect line locations are depicted in Figures D-1 and D-2. The output figures show three panels for each section, including the measured apparent resistivity data (top panel), the calculated apparent resistivity pseudosection from the depth model (middle panel), and the depth model. The depth model is based on inversion of the input data pseudosection with a topographic correction applied corresponding to the surface topography where the electrodes were located.

In reviewing the resistivity results, several general correlation assumptions should be kept in mind. A direct correlation between the geology and the geophysical results cannot be precisely made. However, general variations in the geophysical measurements do suggest specific changes in the subsurface materials. Higher resistivity values will typically be seen for coarser-grained materials, such as sands and gravels. Lower resistivity values will generally be observed for finer-grained materials, such as silts and clays. For a given material type, higher resistivity values will be observed for unsaturated sediments and lower resistivity values will be seen for saturated materials. Water with dissolved solids and minerals will tend to lower the observed resistivity.

In an attempt to correlate the resistivity results, a common color scheme for the resistivity presentation was initially used. This is usually done over a given investigation area because specific subsurface units encountered in a survey area should have similar resistivities. A common color scheme was chosen to allow grouping of similar soil or rock types.

Resistivity Lines RBLIN1 and RBLIN2

Resistivity data results for Line RBLIN1 are shown in Figures D-1. The line runs north-south on the western portion of the access road and drill pad area. The line is approximately 333 feet in length, and the effective penetration depth was about 50 feet.

Resistivity data results for Line RBLIN2 are shown in Figures D-2. The line runs north-south on the eastern portion of the access road and drill pad area, and is approximately 15 to 20 feet from RBLIN1 in the vicinity of where the mine tunnel was anticipated. The line is approximately 249 feet in length, and the effective penetration depth was about 50 feet.

Both lines are characterized by high variability of the resistivity in the shallow subsurface, but are dominated by high resistivities. This is likely due to the near-surface material consisting of loose soil with gravel and small boulders. Additionally, the resistivity was inevitably increased by the disruption of these

materials that occurred during the preparation of the access road and drill pad. The range of resistivities used to model the data in the inversion was from approximately 50 Ω•m to greater than 50,000 Ω•m.

Based on the highly resistive materials, it was thought that electrically conductive anomalies, or low-resistivity zones would be present in the areas near the tunnel and adit due to the high flow of electrically conductive water. Two conductive zones were observed in the resistivity results of both lines that were consistent with this postulation, and they were located near the suspected location of the tunnel. The individual positions of these two anomalies on each separate line correlate well across the two lines conducted. These anomalous areas are shown specifically in Figure 5 of the main report, and were selected for further intrusive investigation.

Intrusive results, which are discussed more fully elsewhere, indicated encountering a substantive flow of water at one location, and encountering the mine tunnel in the other. The use of the resistivity thus allowed the intrusive investigation to be optimized and minimized.